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John M. Yetter

Feb 1978

(Little Leewards)

AN
ENQUIRY
INTO THE
Nature of the Human SOUL;
WHEREIN THE
Immateriality of the SOUL
Is evinced from the
PRINCIPLES
OF
REASON and PHILOSOPHY.
VOL. I.

The THIRD EDITION.

To which is added, a Complete INDEX.

Ἐγὼ δὲ τί βούλομαι; καταμαθεῖν τὴν φύσιν, καὶ ταύτῃ ἑπείσθαι.
Epicr.

Ζῆν' ἂν γὰρ τὴν ἀληθειαν, ἐφ' ἧς ἐθέλεις, ἀπίπῃ ἐξέλκεν.
Marc. Antonin.

L O N D O N :

Printed for A. MILLAR in the *Strand*.

MDCCXLV.



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A N

E N Q U I R Y

I N T O T H E

Nature of the Human Soul.

S E C T. I.

That a resistance to any change of its present state is essential to matter, and inconsistent with any active power in it.

BY the soul we understand that which is active and percipient in us, be it what it will (a): its activity appears in moving the body, and in the command it hath over its own thoughts; its perceptivity, in being sensible of the action of mat-

(a) These are the uncontested properties of the soul, whatever be the substance of it; whether material, or immaterial: and this description shall be always kept in view throughout these papers.

V O L. I.

B

ter

ter upon it, and of its own internal actions in thinking. In shewing that matter is not only not endued with these properties, but is incapable of being endued with them, let me be permitted to be particular, and to proceed leisurely step by step; and let the mathematical Reader forgive the insisting upon trite and common appearances. It is better to seem tedious to the few who are quick in apprehending, and versed in this matter, than not satisfactory to slower capacities, and those who are less conversant in abstract reasoning. Men do not write for those who know the thing already, but for those who know it not; and perhaps a slow person, who hammers out things to satisfy himself, is fittest to communicate them to men of his own size; nor can truth be less, but more certain, for being drawn from the commonest, and least contested *appearances*, or *principles*. These *appearances* we shall first set down, and thereafter gradually shew the necessity of their being constant and certain.

II. Let, to save words, a given body, or mass of matter, be called A; and let any given celerity be called C. That celerity
doubled,

doubled, tripled, &c. or halved, thirded, &c. will be 2 C, 3 C, &c. or $\frac{1}{2}$ C, $\frac{1}{3}$ C, &c. respectively. Also the body doubled, tripled; or halved, thirded; will be 2 A, 3 A; or $\frac{1}{2}$ A, $\frac{1}{3}$ A, respectively. Now to move the body A with the celerity C, requires a certain force to be impressed upon it; and to move with a celerity as 2 C, requires twice that force to be impressed; and to move it with a celerity as 3 C, thrice that force is required; and so on. If it can be made appear hereafter that the first force here is necessary, to move the body, to wit, with the celerity as once C, the rest follows easily; for we may conceive the body A moving with the celerity 2 C, or 3 C, &c. to be the first effect doubled, or tripled; which therefore will require the cause that produced it to be doubled, or tripled respectively. Again, to move the body A with a celerity as $\frac{1}{2}$ C, one half the first force is only necessary to be impressed; and to move it with a celerity as $\frac{1}{3}$ C, one third the first force is only required: and so on here again. And to move it with a celerity as 0 C, that is to give it no degree of celerity at all, no force is required at all. Therefore it follows that

III. The body A makes a certain resistance before it can be moved with a velocity as C; for otherwise the force would not be necessary, if, to wit, it did not make this certain degree of resistance to render it necessary. And it makes double that resistance, before it can be moved with a velocity as $2\ C$; and triple that resistance to be moved with a velocity as $3\ C$, &c. still for the same reason. And it makes but one half the first resistance, to be moved with the velocity $\frac{1}{2}\ C$; and but one third of it, to be moved with the velocity $\frac{1}{3}\ C$, and to be moved with the velocity as $0\ C$, that is to rest still, it makes no resistance at all.

IV. Or, if instead of different celerities, as in N^o 2 and 3, we take the quantity of matter different, the *appearance* is equally constant, and certain (from experience, at least) and the consequence of it the same. For the body A requires a certain force to be impressed upon it, to be moved with a celerity as C; or such a force is necessary: and therefore it makes a certain resistance to be moved with this celerity, otherwise the force would not be necessary. And a body as $2\ A$ will require twice that force to be impressed
upon

upon it to be moved with the same celerity; or it makes twice that resistance. And a body as 3 A will require thrice the first force, or it makes thrice the first resistance, to be moved with the celerity C: and so on. For the force must be increased proportionally with the quantity of matter, or body to be moved, to make it move with the same common celerity: and therefore the resistance is increased proportionally with the body to be moved, the celerity remaining the same. We may easily conceive that a body as 3 A, 4 A, &c. would make three or four bodies equal to once A, each of which would require once the first force, or make once the first resistance. Also, $\frac{1}{2}$ A, $\frac{1}{3}$ A, $\frac{1}{4}$ A, &c. will make but one half, one third, one fourth, &c. the first resistance to be moved with the celerity C; because only one half, one third, one fourth, &c. of the first force respectively is necessary to move such part, with that same celerity.

V. The body A requires the quantities of force abovementioned (N^o 2 and 3.) to be moved with the respective velocities; that is, it makes the proportional resistances there mentioned, before it yield to be moved with

B 3 these

these velocities ; as also the different bodies or quantities of matter in N^o 4. require the respective forces to be impressed, or make the respective resistances there mentioned, before they can be moved with the same common celerity ; in whatever direction the moving force is applied ; whether upward or downward (of which direction in particular more by and by, N^o 16.) backward or forward, obliquely or horizontally, in all possible variety of directions.

VI. Moreover, all this is likewise certain taken the contrary way, *viz.* from motion to rest ; as far at least as experience reaches. For the body A, moving with a certain velocity as C, requires a certain degree of force or resistance in an obstacle, to take off or stop that motion ; and moving with a velocity as 2 C, or 2 A moving with a velocity as 1 C, it requires twice that force or strength in an obstacle to stop the motion ; and A moving with a velocity as 3 C, or 3 A moving with the velocity 1 C, thrice the first resistance only will bring it to rest, &c. And A moving with the velocity $\frac{1}{2}$ C, or $\frac{1}{2}$ A moving with the whole velocity C, one half the first

first force will serve to take off the motion; or if A moves with $\frac{1}{3}$ C, or $\frac{1}{3}$ A with the whole celerity C, one third the first force stops it: and moving with the velocity 0 C, or resting, no force at all is required. That is, the same body A moving with the celerities 1 C, 2 C, 3 C, &c. or 1 A, 2 A, 3 A, &c. moving with the same celerity C, makes once, twice, thrice, &c. respectively a certain degree of resistance, before it can be brought to rest: and A moving with the celerities $\frac{1}{2}$ C, $\frac{1}{3}$ C, $\frac{1}{4}$ C, &c. or $\frac{1}{2}$ A, $\frac{1}{3}$ A, $\frac{1}{4}$ A, &c. moving with the same celerity C, makes but one half, one third, one fourth, &c. of the first resistance to be brought to rest and have all the motion taken off. And this again through all the possible variety of directions in which the body can be supposed to move.

VII. These are the most general, certain *phenomena* of motion, agreeable to universal experience, the common sense of men, and to reason itself. For, as hath been said, if but *any one* of these cases can be shewn to be absolutely necessary; all the rest become so of course. If it requires a certain degree of force to move a given body with a

certain celerity, or to stop that body moving with that celerity (which is too evident to be contested from experience;) it is certain it must require twice, thrice, four times, &c. that force; or one half, one third, one fourth, &c. of it, to move the body with twice, thrice, four times, &c. that celerity; or with one half, one third, one fourth of it only, respectively; or to stop it moving with these respective celerities, since effects are proportional to their adequate causes: and therefore that the body, or any multiple, or submultiple of it, makes the respective resistances, mentioned above, to be moved with that celerity, or with any multiple, or part of it; and that it makes equal resistances, when moving with these respective celerities, to be brought to rest again: and this with respect to all possible directions. To make the argument in any one instance, suit in any other, it requires but to take equal multiples, or equal parts, of cause and effect, force impressed and resistance made. *If the immateriality of the soul, the existence of God, and the necessity of a most particular, incessant providence in the world, are demonstrable from such plain and easy principles, the Atheist hath a desperate cause in hand.* VIII. All

VIII. All that is said then amounts at last to this, *that the body A makes a resistance to any change of the state it is in, whether of rest or motion, in all possible suppositions* : and the same body makes proportionally different degrees of resistance in all possible different suppositions: and it never ceases to make resistance, but when there is no change in the supposition; that is, when the state the body was in is supposed not to be changed. When the body is at rest, it makes resistance to be moved with any celerity as C: and when it moves with any celerity as C, it makes a resistance to move with any other celerity, as 2 C, or $\frac{1}{2}$ C. Nor doth it make less resistance, if moving to be brought to rest again. And this is true of all possible directions the body can be supposed to move in. That is, body, or matter, makes a resistance to any change of the state of rest or motion it is in: or exerts a certain force, if acted upon (which is not fully enough expressed by being barely called a tendency) to continue, and defend itself (to use such a metaphorical term) in the same state of motion or rest in which it is: and would, because of this resistance,
remain

remain in that state for ever, unless some external cause or agent (that is, by the terms, *something not matter*) impressed a force upon it, to make a change in its present state (*b*). Of this external cause to matter, next. But first some observations are to be made upon what is already said; the consequences of this resistance are to be enquired into; and especially the consequences of a contrary supposition, that matter, namely, was divested of such resistance: whereby it will appear, that matter without it would be fit for none of those uses it is now fit for; that the material world, a plant, or (particularly) an animal body, would be impossible things without it; and in fine, *that matter, as a solid, extended substance, must resist.*

IX. And first, though this resistance in matter is real resistance, or certain and real

(*b*) If once we suppose matter existing, every change of the manner or state of its existence requires an immaterial cause, as shall be shewn in this section; and in the last section of these papers it shall also be shewn, that the simple existence of matter, without considering any change of state in it, requires an immaterial cause, or *creating power*: so that matter considered in any respect discovers to us an immaterial Being.

force

force exerted, yet it is *no action* in matter, nor is matter active in exerting it: it is rather only *re-action*, resistance in the properest sense; for it is never exerted till matter is first acted upon. Matter is so far from being active because of this resistance, or from having the power of beginning action, that the resistance is *all* exerted, and *always* exerted, that no action may be begun in it by any thing else. This resistance makes it best of all appear that matter never acts, or effects a change of state in itself, but resists action, and all possible change of its present state, whether of motion or rest. It is a kind of positive, or stubborn inactivity. If it is to be called a power, it is a power not to act: which shews us how improperly the word power is applicable to it, at least in that sense it is applied to any thing else. And if this be found to be the only possible power in matter, it lets us see how safely we may pronounce it void of all power, in the propriety of the word. It is called in the new Philosophy, most significantly, *a vis inertiae*, as it were a negative activity; something receding farther from action than bare inactivity. For, not to move itself, when at rest,

nor

nor stop itself when in motion; and besides, not to be moved, or stopped by any thing else, but with resistance, is more than simply not to act. We cannot conceive any thing more negative of action than this. It is true this stubborn inactivity cannot be so great but that some power must overcome it, since we still see matter moved by some power; but as much as it may seem a paradox at present, it will appear in a little, I presume, that, strictly speaking, the strongest man could overcome but a mighty inconsiderable part of this inactivity of matter (perhaps not so much as the weight of one single grain) without the concurrence of a greater power than his own (*c*). This will surprise those who consider the inactivity of matter, but for the first time, to hear that it is so powerfully inactive a thing.

X. Nor is matter the less inactive, because it acts upon other matter, if that be in its way while it moves. It is as stubbornly inactive while in motion, and resists as much a change of its state then, as while at rest. This very thing comes to pass, because it is

(*c*) See N^o 24. sect. 2.

more than barely inactive, because of its positive inactivity: for if it were but simply inactive, its acting upon other matter would be an impossibility, as shall be observed immediately. This again should convince us of the inactivity of matter; since if it had not, besides bare inactivity, a force moreover to remain inactive, *the action of matter upon matter would be a thing contradictory*. It hath this force which soever of the states it is in, whether of rest, or motion. And certainly, to effect rest, or stop motion where it is, is as great an effect, and requires as much power in the cause, as to effect motion, or produce it where it is not. We have familiar instances of this, in offering to stop the motion of a ball, when smartly struck, or in feeling the resistance it makes to be brought to rest again: and if such bodies are discharged with great violence, men are killed, walls battered down, &c. so difficult is it to bring bodies to rest, where the motion is great (*d*)! Most of the methods of death

(*d*) See Dr. Keil's explication of the first law of nature, *Introd. ad ver. phys.* lect. 4. where, after other things, he says, *Nec magis potest corpus semel motum, motum seu*

death and ruin are affected by the inactivity of moving matter. *Though matter then acts upon matter by motion; yet it is because of its very inactivity that it doth this.*

XI. And farther, since matter resists motion in any direction, or resists motion in all directions equally, matter in motion will resist any change of direction. This is plain in all the possible cases of the congress of bodies, or where they encounter each other in their motions; for in all these cases they act on each other: and this action proceeds from the resistance they make to being put out of the direction they are moving in. That is, they resist a change of the direction of their motion. Whatever force matter hath to continue in the state of motion it is in, it exerts it all, or a part of it at least, upon any

seu energiam suam ad movendum deponere & per se ad quietem redire, quam potest figuram semel sibi inductam exuere, & aliam recentem absque causâ extrinsecâ acquirere And a little after: *Non minor requiritur vis ad corporis alicujus motum sistendum, quàm prius necessaria fuit ad eundem motum corpori imprimendum: unde cum vis inertię æqualibus mutationibus æqualiter semper resistit, illa non minus efficax erit, ut corpus in motu semel incepto perseveret, quàm ut corpus quiescens semper in eodem quietis statu permaneat.*

body

body opposing that direction either directly or obliquely: and indeed if matter did not resist all change of direction, it would not resist at all in being brought from motion to rest; since there is no other way of stopping its motion, but by opposing its direction; and to stop all possible directions of motion, is to stop or hinder all motion: motion in no direction being the same as no motion, rest. This is still more manifestly plain in what is called the *composition* and *resolution* of forces; for whatever changes the direction of a body in motion, without adding a new force to it (*e*), takes off one of the compounding forces. Therefore matter is not barely inactive only in changing the direction of its motion, but, more, it resists all change of direction; and is as stubborn in preserving the same direction, as the same

(*e*) It will be readily allowed, that in the congress of unelastick bodies, the direction is changed, without any new force added: and we shall see what is to be said of the force of restitution in the shock of elastick bodies, a little further on. Moreover, next to the giving matter motion of it self, this is the most fundamental mistake in the *Epicurean* physics, to give it a power to change its own direction. See *Lucretius*, l. 2. ver. 216 to ver. 221.

degree

degree of motion ; since the one cannot be changed without the other. *These are discouraging affections of matter, to those men who would make a supreme Being of it !*

XII. Further, which is worth our attention, the resistance of the same quantity of matter, or body A ; if once we fix upon a certain state, either of rest or motion, as a *terminus à quo* ; may be indefinitely great, or is as endlessly increasible, as the degree of celerity is, with which it may recede from that *terminus*. For the resistance is always equal to the force necessary to be impressed ; and the force must be proportionally encreased with the degree of celerity. To be moved with a thousand, or a million of times the celerity C, a thousand or a million of times the first force is necessary to be impressed ; and therefore it will make so many times the first resistance. And it is the same contradiction to assign the greatest resistance it can make, as to assign the greatest celerity it can be moved with ; or really to assign the greatest number. Thus the resistance of the same body, or quantity of matter, considered in this view, may be increased *in infinitum*. The truth in this
paragraph

paragraph becomes plain also from considering that resistance is the same with re-action; for since action and re-action are equal, the re-action of matter may still be greater and greater, as the action upon it is greater and greater.

XIII. But contrarily, if we consider the same quantity of matter or body A, absolutely, and without any respect to a fixt state, the resistance of it is immutable, and always as much the same, as the solidity or extension of it: so that it is impossible that any force impressed upon it *ab extra*, should take it ultimately off, or lessen it, or encrease it; or, in a word, make it other than it always was, before such force was impressed. It is true, the resistance it makes to a change of its present state may be overcome; but then it makes just as much resistance to persevere in that new state, as in the former: and that resistance again may be overcome, and a new state of motion or rest induced upon it; yet it will as obstinately continue in that state, as in any of the other two. And so on endlessly. If any force *ab extra* overcomes the renitency of the body A, to be moved with

a velocity as a 1000 times C, it will move on with that velocity; which state of motion is now as much to be considered as its state, as the former rest was: and it will just resist as much to be moved with a velocity as 2000 times C, or to have the velocity C another thousand times increased, as it did at first; or to be brought back again, from moving with the velocity 1000 C, to rest, as it did to be brought from rest to move with that velocity. *In a word, as long as a change is possible, which is always and endlessly, so long must it resist; and it must resist equal changes equally:* which was exactly the resistance it was endued with, before any change was effected in it at all, and before any force was impressed upon it at all. So that this resistance cannot be impaired, augmented, or any way altered, by any new force impressed *ab extra*. Which is already a strong symptom that resistance to a change of its state is of the nature of matter, as inseparable from it as solidity or extension; since as long as the solid extension, that is the quantity of matter, in the body A, remains the same, this immutability of its resistance must be supposed, if it is at all resisting matter.

XIV. But yet farther, as this resistance in matter to change its state cannot be ultimately taken off, lessened, or any way altered, by any force impressed *ab extra* upon it; so neither could it subsist in matter jointly with any quality, power, conatus, or tendency to change its state. For first, supposing it possible that two contrary tendencies could be planted in matter; one, whereby it resisted a change of its state, in any possible direction, and another, whereby it tended to change it; this would be to no effect, nor to any other purpose than *doing* and *undoing*. These two contrary conatus's would destroy each other if equal; or if unequal, the stronger would destroy the weaker, and the excess of it only would remain. So that the resistance to a change would either prevail, and then it would be the same thing as if no such contrary tendency had been planted in matter; or the conatus to a change of the present state would prevail, and then the remaining in any given state possible would itself be impossible; which is a thought full of contradiction (*f*).

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Thus

(*f*) This is very inconceivable, and really a self-destructive

Thus two contrary tendencies (supposing they could be both planted in the same individual subject, as matter) would have the same effect upon each other, as two contrary quantities, a positive and a negative; or as two forces impressed upon the same body in opposite directions; to wit, to cancel each other

frustrative supposition. For to be indefinitely changing its state supposes really no change of state at all in the body; because no precedent state could then be of any possible finite duration: otherwise, if it were permitted to become of any finite length, and deserve the name of a precedent state, there would not be an indefinite change effected; or the body would have a tendency to preserve its state for some time, contrary to the hypothesis. To suppose an infinitely quick change of state, from rest to motion, and from motion to rest, is to suppose absolute rest only. For when motion was but nascent, rest would be again induced, because the incessant tendency to change incessantly takes effect: and before *rest* were settled, motion, for the same reason, ought to begin. So that, as was said, this notion destroys itself. How remarkable is this co-incidence, when the only supposition that could serve a sceptick's turn, of necessity defeats itself! For if this tendency to change its state is the stronger of the two, it must overcome the other at all times, and infer the contradiction shewn, in spite of all evasions: and the conclusion is, that *such a superior tendency cannot be planted in matter.*

mutually.

mutually. For a resistance to a change of state would resist a conatus toward it, in any possible direction, by N^o 5 and 11.

XV. This would be the result, if it were possible, that two contrary conatus's could be planted in matter at once: but that is really impossible and contradictory. For that a particle, or atom of matter (and the reason is the same in any assigned quantity) should have a tendency to move in any one given direction, and at the same time that it should have another tendency not to move in that, or any other direction, is *to have* a tendency, and *not to have* it, at once. Two such contrary and inconsistent tendencies, planted at once in one and the same individual subject, is a notion destructive of itself; and therefore not to be effected by infinite power: for to effect impossibilities is not the object of any power. The argument is the same, whether the first state of the body is supposed rest or motion: for if it is supposed first moving, it cannot have a tendency to move in that direction only, and with that particular degree of velocity only; and yet have a tendency to move in another direction,

and with another degree of velocity. The one excludes the other. In a word, a body cannot have a tendency *to change* its present state, and at the same time a tendency *not to change* it, more than two contradictory propositions can both be true: for *these two* are really such. This is a remarkable property of the resistance of matter, *That it is inconsistent with any power or force in it; and should never be forgot by us.* It infers many notable consequences, which it seems we are not sufficiently aware of at all times: and, among others, an utter impossibility that matter can ever become, by any power, a living, self-moving substance; seeing, as will appear, matter must resist all change of its present state, as it is a solid substance. If this had been attended to, an infinity of doubting and disputing might have been saved to mankind.

XVI. This will change our physics a little, and establish a new Theory of matter. For it will follow that all gravity, attraction, elasticity, repulsion, or whatever other tendencies to motion are observed in matter, commonly called natural powers of
matter,

matter, are not powers implanted in matter, or possible to be made inherent in it; but (therefore) impulse, or force impressed upon it *ab extra*. We are apt to think that it is a certain natural quality, or power, implanted in the matter of a stone, v. g. and inherent in it, that makes it tend to the earth (g): but, by what is said in the last paragraph,

(g) Even so great a man as *Borelli* seems to have been of this opinion. In the chapter *de causis & principiis motûs* (the 2d of his book *de vi percussionis*) he says, *Tandem summâ contentione controvertitur, an aliqua corpora moveri possunt à seipsis, vel potius quicquid movetur, à distincto separatòque motore propelli debeat: & profectò, ut à postremo exordiamur, evidentissimum est aliqua corpora à distincto, & externo motore impelli, sic ea omnia quæ vehuntur, percutiuntur, aut projiciuntur, manifestissimè ab externo impulsore promoventur; sed an reliqua omnia, quæ in mundo moventur, pariter ab extrinseco principio, & causâ propellantur, hoc profectò impossibile & incredibile videtur, quandoquidem corpora gravia, & animalia per se videntur moveri, scilicet à causa & principio intrinseco, &c.* What difference there is to be assigned between the moving principle in an animal, and in a heavy body descending, we shall see below; only I think it was not right to conclude them under one head. The expression [*substantia animalica*,] which farther on he says is both *agent* and *patient*, without a clear idea of it in the mind of the person that writes, and an explication of that idea, to

paragraph, it appears that it resists this motion, as much as it would a motion in any other direction, with the same velocity : or that matter is as much *impelled* in this case, as in any other, by some cause or virtue, *ab extra, i. e.* by something not matter. The effect of gravity is not to destroy the resistance of matter, or to make it unresisting matter, but to overcome its resistance to be moved in certain circumstances ; where it still resists as much every new change of state, as if its resistance to the former had not been overcome. And this is the case in all force impressed *ab extra*, by N^o 13. When the resistance of the body A, to be moved with a celerity as a 1000 times C,

communicate it to the person that reads, is of no use in philosophy ; or of bad use : but of such things Mr. *Locke* hath said enough. No man can conceive that the same thing should be both *movens* and *motum*. There is a plain contradiction in this assertion, *eadémque substantia corporis gravis, migrat & descendit, à seipso impulsâ*. A moved resists motion ; a mover overcomes that resistance : these opposites can never consist in the same individual thing. If the distinction of agent and patient is necessary in *projection*, and *percussion*, and the effects of art, it is also necessary in the works of nature. Two things, *necessarily two* in the one case, cannot become *one* in the other,

is overcome, though it resists no more to be carried on with that celerity, which is now to be considered as its permanent state; yet it resists as much to be out of this state, as it did formerly to be brought to it. And this is just the case in the descent of heavy bodies: any velocity from the beginning of the fall would be a permanent state of the body, if new impulses *ab extra* did not add still farther degrees of velocity. This truth is also plain from this consideration, that if a body moving more swiftly than another body moves by the force of gravity, attraction, elasticity, &c. overtakes it; the body so overtaken will make resistance to the impulse of the overtaking body, even though the direction of their motions conspire. For instance, if we call the celerity which a piece of wood hath acquired in falling down through a certain space, K; and the celerity, with which a bullet leaves the muzzle of the gun, C; and then suppose the bullet moving with the sum of these two celerities ($C+K$) to overtake the piece of wood in the end of that space; it is demonstrable that the bullet would pierce the wood, even though their motions were conspiring.

conspiring. For, the relative velocity of the ball and piece of wood being the same, both when it is discharged against the piece of wood at rest, and when it overtakes it in its descent, the greatness of the stroke, and the effect of it will be the same; namely that the ball will pierce the wood. One may be also more familiarly certain of this; if he lets a ball drop out of his hand, and strikes it before it reach the ground; for he will feel it resist the stroke very sensibly. This lets us see that matter resists even the force of gravity, or any other acting in the same direction, as was asserted N^o 5. and consequently, by what was said in N^o 15. that the force of gravity (*the same is to be understood of elasticity, fuga, attraction,*) is a force impressed *ab extra*, and no conatus, or tendency belonging to matter, or inherent in it. But all this will still appear more evidently when we come to consider what *moment* (impetus, or force in a moving body) is: for all *moment* proceeds from the resistance in matter to change its state; and whatever matter hath force, or *moment*, in its motion, must be resisting matter. And consequently matter resists to be moved by
the

the powers of *elasticity*, *gravity*, *repulsion*, &c. for in all these the *moment* is plain by the effect produced. It is the effect produced by the *moment*, or force, that shews the powers of elasticity, gravity, &c. these impulses should be otherwise undiscoverable by us : and it is the *moment* also that inevitably shews the matter to be resisting matter in *these very instances*. So that there is no hazard of our being deceived in concluding universally that all the tendencies to motion observable, or possible to be observed, about matter, are not the powers of matter, or properties residing in it, or possible to be planted in it by any being : but *strictly impulses upon it ab extra*.

XVII. However, let us suppose what some philosophers think not impossible, and see how far it will influence this conclusion ; *viz.* that the power of gravity in particular may be the effect of some fluid, or very subtil matter, impelling those bodies we call heavy (*b*) : and let the same be supposed

(*b*) Dr. Pemberton, in his view of Sir Is. Newton's philosophy, says, that great man himself conjectured this
might

supposed possible also in an elasticity, repulsion, and all the other tendencies to motion
observable

might be so. His words are; *He [Sir Is. Newton] thinks it not impossible that the power of gravity itself should be owing to it [a very subtile spirit, to wit, of a great elastick force, diffused through the universe.] Conclusion. N^o 3. he says, To acquiesce in the explanation of any appearance, by asserting it to be a general power of attraction, is not to improve our knowledge in philosophy, but rather to put a stop to our farther search.* But with all due submission, our search is carried as far as it can go, if it stops only at the first cause, having been rightly carried thither: and there it must stop, if it is rightly made. The elasticity of this spirit itself ought to have been ascribed to the agency of the first Being. Our searches do not suppose an endless indagation of *cause above cause*; but only to attain, if possible, to a First, the fountain of causation. I also humbly beg leave to dissent from Mr. *Derham's* sentiments about gravity. He says, (b. 1. ch. 5. note 1.) *This attractive or gravitating power, I take to be congenial to matter, and imprinted on all the matter of the universe, by the Creator's fiat at the creation.* Not only the reasons above, N^o 14 and 15, but the constant appearances in the descent of bodies, shew that this is an incessant impulse upon matter, not the permanent effect of a transient, simultaneous impression. For it is obvious that an equally accelerated motion could never be effected by one single and instantaneous impression; but by a successive, equable repetition of impulse. He continues, *What the*
cause

observable in matter. And first, it is plain such an hypothesis makes these powers not inherent, or lodged in the matter of the bodies themselves, as properties of it, or as accidents are said to be inherent in their subject; but impulses *ab extra* upon the bodies so *heavy, elastic, repelling*; as here is concluded. This doth not suppose *two inconsistent tendencies* in matter; one *not to change* its present state, and another *to change* that same state: but leaves it as

cause of it is, the Newtonian philosophy doth not pretend to determine, for want of phænomena, upon which foundation it is, that that philosophy is grounded, and not upon chimerical and uncertain hypotheses. [Why suppose it imprinted upon all matter by the Creator's fiat at the creation, and yet seek another cause for it?] *But whatever the cause is, (the following words are a citation from Sir Is. Newton's principles) that cause penetrates even to the centers of the sun and planets, without any diminution of it's virtue; and it acteth not according to the superficies of bodies, (as mechanical causes do) but in proportion to the quantity of their solid matter; and lastly it acteth all round it at immense distances, decreasing in a duplicate proportion to these distances.* Here Sir Is. Newton himself seems to refuse a mechanical cause of gravity; and for that reason; for which Dr. s'Gravesande rejects it, as shall be observed immediately.

much

much resisting matter to all change of state, as here it is contended to be ; and supposes this resistance only overcome by the impulse of other matter. And, secondly, as to this other matter of such subtile fluid, it is evident, it must be as much resisting matter to all change of its state, as the matter of these bodies themselves, which we know, is shewn to be. The *moment* or *force*, which it hath in its motion, and with which it impels these bodies, manifests this. Let it be observed; *the powers of gravity, elasticity, repulsion, attraction, can no more be lodged in the matter of this fluid than in the matter of the real bodies we have been speaking of*, and that for the same reason, assigned above: for this is as contradictory in respect of one sort of matter as another, in respect of a very small particle as of a much greater one, being a palpable contradiction in respect of all matter equally. The matter of this fluid then being, in all respects, matter that resists a change of its state, we must still as much seek a cause of its motion *ab extra* to it, that is, in effect, in *something not matter*, in some immaterial cause, or being, (unless we would be openly

ly

ly absurd, and suppose one thing, itself caused or moved, the cause of another thing moved, *in infinitum*, which includes in it all the contradiction of the Epicurean scheme); I say, we must as much seek a cause *ab extra* to it, of its motion, as of the motion of those bodies we are acquainted with, and have reasoned from: so that we are removed but one step from the *immaterial cause* we were looking for; and the conclusion above is secured, allowing the thing supposed here could be proved real. But then there are strong reasons that shew this hypothesis to be without foundation. Dr. *s'Gravesande* gives several, which, I think, entirely overthrow it (i). One is, *That the action of a fluid upon*
a body

(i) I shall transcribe the whole passage. It is in l. 4. c. 4. at N^o 1237. *Uterius, si gravitas pendeat à lege motûs notâ, ad impactum corporis extranei referri debere, & quia gravitas est continua, impactum etiam continuum requiri. Si talis materia continuò in corpora impingens detur, necessariò est fluida, & quidem subtilissima, quæ penetrat corpora quæcunque; corpora enim in aliis utcunque inclusa gravia sunt. Videat nunc mathematicus, an fluidum adeò subtile, ut corporum omnium poros liberrime permeet, & adeò rarum, ut motui corporum sensibilibiter non obstat, (in loco enim aëre vacuo penduli motus diutissimè continuatur)*

a body could never make it gravitate towards another, more or less, in proportion as the
quantity

tur) corpora ingenita tantâ cum vi ad se mutuo possit propellere? [This is his first argument, which seems very conclusive.] *Explicit quomodo hæc actio crescat in ratione massæ corporis versùs quod aliud fertur. Tandem, quod omnium mihi difficillimum videtur, dicat, quomodo omnia corpora, in quocunque situ, eâdem manente distantia, & corpore, versùs quod gravitas datur, eâdem velocitate ferantur; id est, quomodo liquidum, quod nisi in superficies ipsorum corporum, sive illarum internarum particularum, ad quas accessus ex interpositis particulis non impeditur, actionem suam exerere potest, communicet corporibus motûs quantitatem, quæ in omnibus corporibus exactissimè sequatur proportionem quantitatis materiæ in bis, quod in gravitate ubique obtinere, hoc capite probavimus, & quod directo experimento demonstravimus, respectu gravitatis in telluris viciniis.* And thence he concludes (N^o 1238) *Non tamen negamus, ab ullo impactu pendere gravitatem; sed illam non sequi ex ullo impactu, juxta leges nobis notas, clarè patere contendimus, gravitatisque causam nos omnino latere fatemur.* Moreover, with respect to this subject of gravity, it is to be observed, that it was the capital mistake in the *Epicureans* to make it, and therefore motion, essential to matter. See *Lucret. l. 1. ver. 986. to ver. 996. and from ver. 1074. to ver. 1079: and again l. 2. ver. 132. to 138. and ver. 202.* This hath made him suppose a monstrous universe, where matter is still falling down, by it's innate gravity, through the infinite abyss

quantity of matter in that other were itself more or less; which is allowed even by those, who suppose the power of gravity may be the effect of the action of some fluid. If a cause produces an effect, it is highly reasonable that such effect should follow the proportion of its cause: but quite unreasonable that it should follow the proportion of another thing, no way concerned in producing such effect. There is another argument which this Author adduces, and every body owns, that shews gravity is not to be ascribed to the mechanical action of matter upon matter; namely, *that gravity acts internally, and according to the solidity of the matter itself; whereas the action of other matter upon it ought to be according to the superficies of the parts*, since there is not a penetration of dimensions, unless we would deny the solid extension of all matter. Then indeed the more surface any body had, that is, the more porous the contexture of it were, the mechanic action

of space; as if that had the relative denominations of *above* and *below*. Nor is *Des Cartes* much happier in his mechanical solution of gravity, who makes a subtle fluid, in it's circumgiration, recede from the earth, and so beat down other bodies to it; though this should rather carry them from it.

of any fluid matter upon it, and therefore the gravity of it, ought to be the greater: which is directly contrary to experience. These reasons, abstracting from those above N^o 14, 15 and 16, shew that gravity is not the action of matter upon matter, but the vertue and power of an immaterial cause, or being, constantly impressed upon it (*k*).

XVIII. To

(*k*) After all that hath been said, there is a difficulty still urged with respect to gravity, which with much submission I humbly beg leave to consider. It is said, Sir *Is. Newton*, at the end of the last edition of his *Optics*, gives many reasons, which induced him to believe there was a subtile elastic fluid, which might be the cause of gravity, and the cause of many other phænomena, particularly those of heat and light, at the same time. By reducing more phænomena to one principle, cause, or instrument, the beauty of nature is set in a greater lustre. Though this principle may be immediately deduced from the first cause, s^t *Gravesande's* arguments do not hold against this fluid, as Sir *Isaac* describes it. As it pierces all bodies and touches their elements, or least particles, it may act on them with a force proportional to their number, or to the matter of the body on which it acts. It is rarer in great bodies than in small ones, and therefore may act with a force proportional to the body towards which it impels. To begin with the last of these reasons: It doth not appear sufficient, in order to account how this fluid may act with a force proportional to the body to which another is impelled, to assert that it is rarer in great bodies than in small ones: it must be farther

XVIII. To return then; as from N^o 14 and 15. it appears, that this resistance to a

change

farther asserted, that this fluid is rarer or denser in the same body, whether small or great, according as the body to which that is impelled, is itself small or great. In the earth, as gravitating to the moon, it must be very rare; and in the earth again, as gravitating to the sun, it must be very dense: How can the same fluid be both dense and rare in the same body at once? Besides, it must be asserted, that this fluid is denser in dense bodies, whatever their magnitude be, than in rare ones; for these gravitate most: which seems directly contrary to reason; since the denser any body is, the less freely any fluid, ever so subtile, would pervade it, to give every particle an impulse; and contrarily, the rarer the more freely. Moreover, if there be any solidity in bodies at all, which it would be strange to deny, a fluid cannot pervade, I think, to the innermost particles of these solid parts, to give these their impulse, without supposing a penetration of dimensions: acting according to their number, is acting according to the very solidity of bodies.

In this particular, let me reason as things appear to myself; because possibly they may appear the same way to others. If *every particle* through the whole solidity of a heavy body, received its impulse from the particles of this fluid, it should seem that the fluid itself must be as *dense* as the very densest heavy body, gold for instance; or that there must be as many *impinging* particles in the one, as there are *gravitating* particles in the other, which

change of its present state of rest or motion,
is

receive their gravitation by being impinged upon : which does not suit with the phænomena of motion in general, and with the motion of pendulums in particular, and gives Dr. *s'Gravesande's* arguments before cited great strength ; but it seems then that throwing gold, or any heavy body upward, against the impulse of this fluid, would be like throwing gold *through* gold. And since this medium must be as dense when it impels cork, as when it impels gold, to throw a piece of cork upward, must be as if we endeavoured to make cork *penetrate* a medium as *dense* as gold. The expedient found out to make this medium appear more probably the cause of gravity, hath been to imagine all bodies exceedingly porous and rare : and this notion is carried so extravagantly high, as to suppose *that all the matter in the known universe might not take up one cubical inch of space.* (See Dr. *Pemberton's* Review of Sir *Is. Newton's* philosophy, b. 3. ch. 2. at the end : and what is said concerning a progression of pores by Sir *Isaac Newton* himself, at the end of his Optics). But might not one say, that this is contriving one hypothesis to support another hypothesis, and then contending (in the present objection, I mean) for the reality of both ? Besides, it no way takes off the difficulty I just now urged, that the fluid must be as dense as the very densest body to give every particle its impulse of gravity. But then what is to be said, if we suppose a body perfectly solid, or without any pores ? Gravity is allowed on all hands to be as the quantity of solid matter. Now if there were a cubick inch of such a perfectly solid body, and a cubick inch of a body that had

is the only tendency planted in matter; or,
to

had a hundred times more pores than solid matter, the first should gravitate an hundred times more than the last, as having an hundred times more solid matter; and yet from the impulse of this medium, it should gravitate an hundred times less at least, as having an hundred times less surface: for the medium could only act on a surface of an inch square.

There is no way of avoiding this consequence, but by saying *arbitrarily* that there is an hundred times more surface in the square inch of the perfectly solid body; or that the medium impinges on an hundred times more solid particles in this square inch of surface, than in all the solid inch of the rarer body: but even that is contradictory; for by supposition, there is but an hundred times as much matter in the whole solid inch of the perfectly solid body; and surely it is not all lodged in one of the surfaces, or in any of them.

There is another hypothesis that must be maintained by those who assert this elastick fluid as the cause of gravity, which is itself very improbable, *viz.* that the perfectly solid parts of all bodies whatsoever, are of equal bigness: for in similar particles, the solidity is in a triplicate ratio of the homologous sides, and the surface only in a duplicate ratio of these. So that if similar solid particles are of a different bigness, the matter being in a triplicate, and the action of a fluid only in a duplicate ratio of the sides, the same quantity of matter will not have the same gravity. If two particles have their sides as 2 and 3, their gravities will be as 4 and 9, and yet their quantities of matter are as 8 and 27.

to speak more truly, proper to it as matter:
and

Dr. *Clarke* arguing against Mr. *Colins*, says, “ This
 “ proportion it is that evidently shews gravitation not
 “ to be caused by material impulse. And unless you
 “ [Mr. *Colins*] could have found out an hypothesis,
 “ whereby either the quantity of solid matter in bodies,
 “ and the quantity of their superficies, could be made
 “ one and the same; or upon mechanical principles,
 “ bodies could, by superficial contact, receive impulses
 “ proportional to the quantity of solid matter contained
 “ in them; you would much more advantageously to
 “ your self, have acknowledged the first palpable er-
 “ ror, than by a heap of things besides the purpose,
 “ have endeavoured to amuse only such readers as
 “ want skill in mathematics.” This is in his fourth
 defence of an argument, to prove the immateriality of
 the soul, &c. p. 244. And in his third defence, p. 183.
 he says: “ It has been demonstrated even mathemati-
 “ cally, that gravitation cannot arise from the configu-
 “ ration and texture of the parts of matter, and from
 “ the *circumambient impelling bodies*; because, if it did,
 “ it would not be proportionable to the quantity of
 “ matter, or the solid content of all bodies, without
 “ any regard to their superficial proportion, as we find
 “ by experience it is; seeing all bodies, of all textures,
 “ and all configurations of parts, and all varieties of su-
 “ perficial proportion, (a bullet, or a feather, or a piece
 “ of leaf-gold, or a sheet of paper), descend *in vacuo* with
 “ equal swiftness. And if material impulse be *not* the
 “ cause of gravity; then some Being that is not mat-
 “ ter (for laws, or powers, are nothing but empty
 “ words)

and that it is inconsistent with any other conatus,

“ words) *must of necessity* be allowed to be the cause of “ it.” And the Doctor at this place refers (in the margin) to Sir *Is. Newton's Principia*, and the very queries at the end of his *Optics*, as confirming this reasoning. And it must seem strange if these queries both confirm and oppose it.

Again, if we suppose a cubical inch of gold receiving its impulse of gravity from the particles of this fluid, how can we conceive those particles that penetrate through the whole depth of the gold, in order to give that side of it nearest the earth its impulse of gravity, to pervade all the rest of it without striking against solid parts, and then at length to find solid parts at the undermost surface to impinge upon? All the gold is of one density sure. Or suppose it were not; yet invert the gold, and turn the densest side uppermost, and the difficulty becomes greater. These impinging particles must pass the densest side, and find only solid parts to strike against in the rarer.

As to what is said, *that by reducing more phænomena to one principle, cause or instrument, the beauty of nature is set in a greater lustre*; it is certainly true: but I do not think any mechanic principle or second cause, can (by the terms, or as being a second cause) be so simple, or set nature in so great a lustre, or shew the universality of Providence, or the immediate presence of God so much, as to shew he himself is immediately concerned in all the operations of nature. Let what I have said above, in this seventeenth paragraph, be remembered, *viz.* that we are but one step removed from the

natus, or tendency to change it : so if this
resistance

immediate causation of the first cause, even by allowing the intervention of this elastic fluid, unless we would be openly absurd, and make a series of effects infinite. The first cause then must give the impulse to every one of these elastic particles immediately : and therefore this superinduced mechanical cause of gravity would be a multiplying of principles needlessly. To suppose God moving one thing, and that thing another, &c. for a long train, saves the Deity no pains, (if I may speak so) and is more unphilosophical ; only it agrees better with our weakness, and therefore with our prejudices, who are forced to help ourselves by the natural powers of matter (as we call them). *But what needs God help himself by his own powers ? And they are originally his powers, unless we would incur direct atheism.* We want power, and therefore display all our art to help our selves the best way we can : hence we think it is art in an infinitely powerful being to do as we do, though there is no parity. The wisdom of God discovers itself a thousand other ways : but since it is a contradiction that motive power should be lodged in matter, philosophy will not allow us to seek a compend here.

Sir *Isaac Newton's* own account of this fluid is as follows. In the advertisement to the second edition of his *Optics*, he tells us, *that at the end of the third book in that edition, he had added some questions ; and to shew that he did not take gravity for an essential property of bodies, he had added one question concerning its cause, chusing to propose it by way of a question, because he was not yet satisfied about it for want of experiments.* The
question

resistance were not in matter, it would follow

question itself is the 21st in number, and in the following words. “ Is not this medium much rarer within
 “ the dense bodies of the sun, stars, planets and comets,
 “ than in the empty celestial spaces between them?
 “ And in passing from them to great distances, doth it
 “ not grow denser and denser perpetually, and thereby
 “ cause the gravity of those great bodies towards one another,
 “ and of their parts towards the bodies; every
 “ body endeavouring to go from the denser parts of the
 “ medium towards the rarer? For if this medium be rarer
 “ within the sun’s body than at its surface, and rarer
 “ there than at the hundredth part of an inch from
 “ its body, and rarer there than at the fiftieth part of
 “ an inch from its body, and rarer there than at the
 “ orb of Saturn; I see no reason why the encrease of
 “ density should stop any where, and not rather be
 “ continued through all distances from the sun to Saturn,
 “ and beyond. And though this encrease of density
 “ may at great distances be exceeding slow, yet if
 “ the elastic force of this medium is exceeding great,
 “ it may suffice to impel bodies with all that power
 “ which we call gravity. And that the elastic force
 “ of this medium is exceeding great, may be gathered
 “ from the swiftness of its vibrations. Sounds move
 “ about 1140 *English* feet in a second minute of time,
 “ and in seven or eight minutes of time they move about
 “ one hundred *English* miles. Light moves from
 “ the sun to us in about seven or eight minutes of
 “ time, which distance is about 70000000 *English*
 “ miles, &c.

Here,

low that then the same force, and that an
infinitely

Here, with that great deference which becomes me, let me be forgiven if I offer the reasons why this account of this elastic medium seems to me not to answer the appearances of gravity. And first, if it is much denser without the bodies of the planets than within them, or much rarer within these dense bodies than without them, it will be much rarer within and on the surface of the earth (a planet) than at a distance, and therefore much rarer within dense bodies which lie within or on the surface of it, (minerals and metals for instance) than without them: whence it would appear they should gravitate more according to their surfaces than their internal solidity, and the parts of the earth (solid rocks and the heavier strata) should not gravitate to the earth itself according to their quantity of matter. So that this account doth not seem to answer for the different specific gravities of different bodies lying in the same depth, since in these, however different, it seems to be supposed equally rare, the density of it not being accommodated to the different densities of bodies, but to different distances. Besides those great bodies themselves, the sun, planets, comets, ought to be impelled to each other according to their quantity of matter, which cannot happen, if this elastic medium acts more forcibly on their *surfaces* than *internally*, as it must do, I think, on this supposition. Farther, if this medium grows always denser the greater the distance is from the surface of a planet; a body let fall at the distance of 60 semidiameters of the earth from its surface, or at the distance of the moon, would move faster in the beginning

infinitely little one, would move all quantities,

ginning of its descent, than when let fall at one semi-diameter's distance only ; unless we would say that the denser an elastic medium is, it acts with the less force, the contrary of which is true. But a body let fall here moves about 16 feet in a second, and at 60 diameters distance it would move but about sixteen feet in 60 seconds: for the spaces run over increase as the squares of the times, and decrease as the squares of the distances, so that in this case they would be the same. See Dr. P.'s Rev. of Sir *Is. Newton's* Philosophy, b. 2. ch. 3. N^o 4. and again ch. 5. N^o 3.

Moreover, an elastic medium that consisted of particles which repel each other, like our air ; for Sir *Isaac Newton* says a little below, “ And so if any one should
 “ suppose that Æther, like our air, may contain particles which endeavour to recede from one another
 “ (for I do not know what this Æther is) and that its
 “ particles are exceedingly smaller than those of air, or
 “ even than those of light : the exceeding smallness of
 “ its particles may contribute to the greatness of the
 “ force by which those particles may recede from one
 “ another, and thereby make that medium exceedingly
 “ ly more rare and elastic than air ;” I say, an elastic medium that consisted of particles which repel each other, like our air, would resemble our air also in another particular, which, I humbly think, would overturn this whole hypothesis : for the particles of such a medium, endued with this repulsive force, should, like those of air, repel each other the more strongly the nearer they were to each other, that is, the denser the medium

ties, or masses of matter, how unequal soever,
with

medium were in any part: and there being less resistance towards the side where it was rarer, they would recede to that side, till their forces were *in equilibrio*, and the whole mass of this medium became of an equal density. In which case, their elasticities balancing each other, the particles would rest, and produce no effect upon any dense body either without or within its surface. This is the very case of our air, whose elastic, repelling particles could never, I think, be supposed the cause of bodies being impelled to each other in it.

Farther, let me anticipate, in some measure, here, an argument I shall insist upon below. The action of this fluid is supposed the cause why the parts of these great bodies, the sun, planets, comets, gravitate to the bodies themselves (see the Question cited) *that is*, gravitate towards one another; or it is supposed to act within the solidity of these bodies. Now there is such an affinity between the mutual attraction of the internal parts of great bodies (as the earth) and the internal parts of small bodies (as a stone, gold, &c.) while they lie in the strata: that is, between the attraction of gravitation and the attraction of cohesion, that if it is absurd to offer a mechanical solution of the one, it seems no less absurd to offer to solve the other mechanically. Why might we not suppose that the action of this fluid impels the internal parts of marble to one another, as it doth the internal parts of the earth? Is there a different cause of cohesion, when the marble lies in the stratum in the bowels of the earth, and when it is brought up to the surface? All the arguments that
ever

with equal facility; and that it would be equally

ever were offered to account for the attraction of cohesion mechanically, confute themselves. In the instance just now assigned of marble, the two attractions coincide. The distinction between them, in this case, seems but nominal. If an immaterial impulse is necessary in the one, is it not in the other? And, finally, if so, is not this hypothesis an inartificial multiplying of principles?

Again, if light is darted in all directions indifferently from any luminous body (the sun particularly) and reflected to any side from specula and all opaque bodies; and if sound is propagated *quaquaverfum*, by the vibrations of this medium; it seems hard to conceive that the vibrations of the same medium that push light from the sun, should push the planets, &c. to the sun? Or do the contrary vibrations encounter one another? They are strong one way, in impelling the earth to the sun's surface; and yet they seem no less strong the contrary way in impelling heavy bodies to the earth's surface which is nearest the sun. It is to be observed with respect to these contrary vibrations, that they must as much shatter, confound and hinder one another, when the medium is supposed the same, as if they were the contrary vibrations of two different mediums. Thus Sir *Is. Newton* himself reasons, speaking of a supposition of Mr. *Huygens's*, (Quest. 28.) "And it is as difficult to explain by these hypotheses, how rays can be alternately in fits of easy reflexion and easy transmission; unless perhaps one might suppose that there are in all space two *Æthereal* vibrating mediums, and that the vibrations of the one of them constitute light,

qually easy to give the same degree of celerity

“ light, and the vibrations of the other are swifter,
 “ and as oft as they overtake the vibrations of the first,
 “ they put them into those fits. But how two *Æthers*
 “ can be diffused through all space, one of which acts
 “ upon the other, and by consequence is re-acted upon,
 “ without retarding, shattering, dispersing and
 “ confounding one another’s motions, is inconceivable.” If then it is inconceivable that the action of this medium should not be retarded, shattered, &c. by the re-action or resistance of another medium, though both so rare and unresisting, as not to impede the motions of the celestial bodies; is it less inconceivable that its action should not be retarded, shattered, &c. before it reaches the heart of marble, brass, adamant?

As to what Sir *Is. Newton* says in the last part cited from *Quest. 21*. That the littleness of the repelling particles may contribute to the greatness of their repulsive force. This is a direct impossibility, unless he ascribes this repulsive force to an immediate immaterial power exerted, and not to the particles themselves; which argument I shall insist upon, when I come to speak of the repulsive force of the particles of air, and of the cohesion of the least parts of matter; for otherwise, it is as if we should say, The less the adequate cause is (a repelling particle, to wit) the greater the effect may be (namely, the force exerted by it). The less a material particle is, the less power it must have, excluding all other agency; and that can never produce the greater effect: nay (I repeat it) it must be an immaterial agent; for the mechanic action of other matter could never be greater on a particle

larity to any body : or rather that no force
at

ticle the smaller it were. And what he says here, he repeats elsewhere on another subject, (*Opticks*, p. 370. edit. 3d.) “ Now the smallest particles of matter (says he) may cohere by the strongest attractions, and “ compose bigger particles of weaker virtue; and many of these may cohere and compose bigger particles “ whose virtue is still weaker, &c.” Now it is impossible the very smallest particles should attract each other with such prodigious force as not to be overcome by any second cause (for this will appear true) unless an external power impelled them to each other incessantly. Let there be two particles A and B, and it is altogether admirable that I can overcome the joint resistance of them both, any way I please, and yet cannot overcome the separate resistance of any one of them, so as to make it leave the other.

The words of this great man are still farther urged by others, in defence of a mechanical gravitation; viz. “ That “ the *magnet* acts upon *iron* through all dense bodies not “ magnetic nor red hot, *without any diminution of its virtue*; as for instance, through *gold, silver, lead, glass, water*. The gravitating power of the sun is transmitted “ through the vast bodies of the planets, without any diminution, so as to act upon all their parts to their very “ centers, with the same force, and according to the “ same laws, *as if the part upon which it acts were not surrounded with the body of the planets.*” [*Optics*, p. 242.] And again: “ If any one would ask how a medium can “ be so rare; let him tell me how the air, in the upper “ parts of the atmosphere, can be above 1000000000

rarer

at all would perform this. For where no
resistance

“ rarer than gold. Let him also tell me, how an electric body can by friction emit an exhalation so rare
“ and subtile, and yet so potent, as by its emission to
“ cause no sensible diminution of the weight of the electric body, and to be expanded through a sphere,
“ whose diameter is above two feet, and yet to be able
“ to agitate and carry up leaf-copper, or leaf-gold, at
“ the distance of above a foot from the electric body ?
“ And how the effluvia of a magnet can be so rare and
“ subtile, as to pass through a plate of glass without any
“ resistance or diminution of their force, and yet so
“ potent as to turn a magnetic needle beyond the
“ glass.” [Opt. p. 327.]

As to the first of these instances ; *gold* is a denser body than *iron* ; and that the particles of matter from a magnet should pass *freely*, and *without impinging* on the denser body, and then *impinge on*, and *impel* the parts of the rarer body, if there were no other thing than material impulse in the case, is itself impossible and contradictory. These particles are but dead matter, and can only receive an impulse in one direction ; and yet they are supposed here to pass without hindrance or let, through a *denser* body, and seize upon a *rarer* body beyond that : If this is so, I am sure it is not an effect merely mechanical, or performed without the intervention of a superior cause. What should direct them in their passage through the *denser* of the two bodies, *freely*, or without striking against the parts of it, (for it is said, *there is no diminution of their power* ;) that they may *impell*, and *act upon* the parts of the less dense ?

For

resistance is, no force needs be bestowed to
overcome

For every one sees that, according to merely mechanical action, they should impinge most on the densest body; especially since it is nearest, and since their power must decrease as the squares of the distances from the magnet increase. To alledge *attraction* here, is to alledge *immaterial power* exerted: since *matter cannot act where it is not*. And if, on any hypothesis, an immaterial cause must intervene; it will be needless to urge this instance in defence of a gravitating fluid supposed to be mechanical.

The instance of *the sun's gravitating power being transmitted to the very centers of the planets*, is the instance in debate, and cannot therefore be well urged to prove itself. It is contended that this gravitation is not the power of the sun. The sun, like every other body, can have no other power but a *vis inertiae*. And when it is asserted, that *this power acts upon the very centers of the planets, as if the part on which it acts were not surrounded with the dense body of the planet*; this is to own, I think, that this cannot be the action of matter upon matter; but rather the action of an immaterial cause upon it.

As to what is said of *a medium being so rare, &c.* there is no doubt a medium may be rare in any assignable proportion with respect to a given body, as gold: but a medium which impels bodies according to their quantity of solid matter, must be as dense as the very densest body it impels, that every particle in the body may receive its impulse from the particles of this medium. And it avails nothing to contrive hypotheses con-

overcome it. A smaller or a greater mass of matter could make no difference of resistance, in that supposition, where matter universally was endued with no power to resist: nor could the difference of velocities occasion any difference in a thing, which is equally denied concerning all velocities. The whole terraqueous globe would then make no greater resistance to the moving force, than a hand ball now doth: nay not an infinitely little part of that resistance. A moving body could lose nothing of its

cerning the various possible density, or rarity, of bodies, or of this medium; since, if the density of this medium and of the heaviest body, must be the same, or equal, the difficulty still remains. Such a medium would as much resist the motion of bodies, as if there were a *plenum* of the very densest body; gold for instance.

As to the third instance of effluvia issuing from electrical bodies upon friction, and bringing up, or repelling leaf-gold or other light bodies at the distance of above a foot; I ask whether this can be supposed to be done, without *attraction* or *repulse*? And that is, Whether it can be supposed without immaterial power exerted? That matter should *attract* or *repell* other matter, or act any way but by *immediate contact*, and because of its *vis inertiae*, is directly impossible. Therefore adducing such instances to support a mechanical cause of gravity, is contending that one effect may be *mechanical*, because another is *not mechanical*.

moment (if moment were possible on this supposition) by carrying any obvious body along with it (1). These are consequences equally (and flagrantly) contrary to reason and experience.

XIX. So

(1) Mr. Herman hath a paragraph in the *Prænotanda* to his *Phoronomia*, the whole of which I beg leave to cite, both as it confirms what is here said, and nearly coincides with that description of the resistance of matter given above, N° 9. It is his 11th: *Sed inest etiam corporibus vis quædam passiva, ex qua nullus motus, nec tendentia ad motum resultat; sed consistit in renixu illo, quo cuilibet vi externæ mutationem statûs, id est motûs vel quætiis, corporibus inducere conanti reluctatur. Quæ resistantiæ vis, significantissimo vocabulo, à summo Astronomo Joh. Keplero vis inertię dicta est. Hæc vis inertię in corporibus quiescentibus, se satis prodit; etenim corpus quodcunque A in aliud, sed quiescens, B impactum aliquid de suâ vi & motu amittet, excipiensque B aliquid virium & motûs ab impellente A acquirat. Ex quo claret, quiescens corpus B reapse vim aliquam passivam habere, à vi in id incurrentis corporis A frangendam atque superandam; alioqui impellens A post occursum nihil de suo motu amisisse debuisset, cum corpus quiescens B, si resistendi facultate careret, alterius motui nullam remoram afferre possit, adeò ut ambe, impellens A & impulsus B, eâ ipsâ celeritate, quâ corpus A ante occursum ferebatur, etiam post impactum incidere deberet, quod phænomenis adversari nemo non videt.* The same argument will shew the *vis inertię* also, as easily, in

XIX. So likewise any assignable body, moving with any possible celerity, would be stopped, and the whole motion quite extinguished, by any the least resistance possible; or rather this would be done by no force at all (*m*): for having no force to
continue

moving bodies. For if A be supposed to come up on B moving in the same direction, but more slowly, the first will lose, and the last gain some velocity; just as in the former case. And generally, there is no instance of the action of bodies upon bodies, where it doth not appear, if we reason rightly; since all such action proceeds from it, as is shewn N^o 10, and fully explained in the next paragraph.

(*m*) Dr. Keil expresseth the case both of this and the last paragraph, in the place cited above at the note (*d*) clearly. *Quidam sunt philosophi, qui corpus ex suâ naturâ tam ad motum quàm ad quietem indifferens esse supponunt; at per indifferentiam illam non (ut opinor) intelligunt talem in corporibus dispositionem, per quam quieti aut motui nihil omnino resistunt; quippe, hoc posito, sequeretur corpus quodvis maximum summâ celeritate motum, à minimâ quâvis vi posse sisti; aut si quiesceret magnum illud corpus, ab alio quovis minimo propelli, absque ullo velocitatis corporis impellentis decremento; hoc est, corpus exiguum quodvis in aliud maximum impingens, posset illud secum abripere, sine ullâ ipsius retardatione; & utrumque corpus post impulsum junctim ferrentur eâ celeritate, quam prius illud corpus exiguum habebat, quod absurdum*
esset

continue its motion, there should be nothing to be overcome, or no contrary force would be necessary. Let a man reflect a little in his own mind on the nature of such a consequence as this. Hence it is palpable that the force of moving bodies to act on other bodies, or what is called *moment* in them, proceeds solely from their resistance to a change of their state. Or, it is their primitive resistance multiplied by their celerity; or the force necessarily impressed on them to overcome this their resistance, and equal to it, and which they retain. This will be plain by an example. The force necessary to be impressed on the body A, to make it move with the celerity C, overcomes its natural resistance once (so to say,) or overcomes its resistance to be moved with this degree of celerity; which state it obstinately continues in, or retains the degree of force impressed. And the force necessary to be impressed upon it, to make it move with a

esse omnes novimus. Non igitur indifferentia illa sita est in non renitentiâ ad motum ex statu quietis, aut ad quietem ex statu motûs, sed in eo solùm, quod corpus ex suâ naturâ non magis ad motum quàm ad quietem propendeat, nec magis resistit transire à statu quietis ad motum, quàm à motu rursus ad eandem quietem redire.

degree of celerity more, or with 2 C, which is just as much as was impressed the first time, overcomes its natural resistance a second time; and this second impressed force it also retains, because of it's inactivity to destroy, or lay it down. And just so, it retains the third force impressed, equal to any of the former, and necessary to overcome its equal resistance to be moved with a third degree of velocity, or with three times C altogether. And so on. Therefore the whole resistance now will be the three forces impressed, equal to the three different resistances made: so that, as was said, the *moment* is equal to the primitive or first resistance multiplied by the celerity, or to the force impressed to overcome that resistance (*n*). Nor is

(*n*) Here it hath been suggested, "That what I think so evident about the force of bodies is disputed by *s'Gravesande*, *Bernouilli*, &c. who estimate it by the square of the velocity, and not by the simple proportion of the velocity." To this I answer, That Mr. *Leibnitz*, and those who follow him in this particular, do not deny matter to be a resisting substance, more than others; and as long as this is allowed, the main conclusion stands, let that resistance be in what proportion it will. It would be of no service to a sceptical objector to allow the resistance of matter, and only quarrel about the proportion it is made in. But farther,

is there any thing more absurd than that any number of degrees of celerity, abstractly considered,

farther, I cannot help thinking still, that what is here said about the force of bodies is very evident to any one, even in the simple coarse way it is deduced in this paragraph: great men have shewn it in a better way, and demonstrative form. All sides, I think, grant that the resistance any body, as A, makes to be moved, is the same with the resistance it makes to be stopt again: but if that were as the squares of the velocities, the body A would make four times the resistance to be moved with 2 C, as it doth to be moved with 1 C; and nine times that resistance to be moved with 3 C; 16 times that resistance to be moved with 4 C, &c. But this is extremely absurd; for, from the same reason that A resists any change of its state of motion (or rest) at all, it resists equal changes equally: and, as I have said in this N^o 19, A moving with 1 C, is as much at rest with respect to A moving with 2 C, as A moving with 6 C is to A moving with 1 C; or the changes from rest to motion are equal: and therefore contrarily, from motion to rest.

Besides, it is a standing theorem in mechanics, *that the state of the center of gravity, resting, or moving uniformly forward, is not changed from the action of bodies among themselves, or their shock on each other.* Nor is it less evident that 2 A moving with the celerity C, hath twice the force of once A moving with the same celerity. Now supposing A moving with the celerity 2 C, to encounter directly 2 A moving with once C, the center of gravity rests before the shock: but since (on this supposition) the contrary moments are as 4 and

considered, or without resistance, should constitute *moment*: which yet the denying of what

2, the center of gravity and the bodies will move after the shock. Which, I think, would confound the laws of the congress of bodies, both elastic and unelastic.

Moreover, it is impossible the forces of bodies falling by gravity can be in the proportion of the squares of the velocities. Such a motion is uniformly accelerated, as Mr. *Wolffius* owns and demonstrates, *Theor.* 14. *Element. Mechanicæ*; or such as receives equal increments of velocity in equal times, *Defin.* 15. *Element. Mechan.* Therefore the increments of velocity, or the impulses of gravity which cause them, must be unequal in equal spaces of their descent, the fewer always the farther they have descended; for, the velocity always increasing, the equal spaces are run over in shorter times. The forces therefore cannot be as the spaces fallen through (which are in the same proportion as the squares of the velocities) unless the bodies received an equal number of impulses in equal portions of these spaces. In four times any space the bodies receives but twice the number of impulses as in once that space, because but twice the time is spent in the fall; in nine times that space, but three times the number of impulses, &c. In this case then, they who follow Mr. *Leibnitz's* hypothesis, will be pressed with absurdities, say what they can; for either the body receives four times the number of impulses in twice the time, nine times that number in thrice that time; and so on, increasing in the ratio of the squares; which is monstrous, and could never produce a motion uniformly accelerated: or if the impulses are but simply

what is here said would infer. Calling the *moment* M , and the resistance R ; it will be $3 C R = M$, and not $3 C = M$. And since, from the reasoning in N^o 4. it is also $3 C A = M$, it follows that $3 C R = 3 C A$, or $R = A$. That is (if matter resist at all) every part of the body A resists; or there is no unresisting matter in it. Besides, we may be satisfied that the body will resist the equal changes equally; since A moving with the velocity $1 C$, is at rest as much with respect to A moving with the velocity $2 C$, as A moving with the velocity $0 C$, or resting, is with respect to the times, then twice the number of impulses impresses four times the force on the body, thrice that number nine times that force, and so on in the ratio of the squares again; which is as monstrous an absurdity on the other side, and directly opposite to that shewn above, where the body made four times the resistance to be moved with twice the velocity; and here it requires but twice the number of impulses to receive four times the force.

Better judges than I have observed that Mr. *Wolffius*, in endeavouring to demonstrate that the forces of falling bodies are as the squares of the velocities, applies in the proof a proposition which has nothing to do with descending bodies: and that *Bernouilli* in his demonstration (*ibidem*) supposes the compounded force equal to the sum of both the compounding forces, or confounds *mechanical composition* and resolution of forces with *arithmetical addition* and *subtraction* of them. spect

spect to A moving with the velocity 1 C; or their relative velocities are equal. If we conceive two men riding, the one after the other, and equally fast, they are relatively at rest, as if they were both standing still (o); since the distance between them is always the same. It is the same thing as if they were both carried in a ship with that celerity, and the same distance between them.

XX. Therefore, if we would at any time silence all our doubts about the inactivity of matter, and be practically convinced of its resistance to all change of its state, we need only call to mind *that force or moment, in it to act on other matter, is only the sum of all the forces impressed upon it ab extra* (that is by some immaterial Being, N° 14 and 15.) *to overcome its resistance to motion; and retained by it, because of its farther resistance to change the state it is thus put into.* And hence, as was asserted N° 16. since matter moving by *gravity, attraction, elasticity, repulse*, hath moment or force, it is a plain case *it is resisting matter in these motions; and that it is impelled in them, by something without itself, or not matter;*

(o) Xenophon long since observed this: Καὶ γὰρ ἕαν ἀμφοτέρω ταχία ᾖ, ἕως δὲ πλεονέον γίνονται ἀλλήλων, ὥσπερ τὰ ἐσθλότερα ἴσταν. (imposed. and

and that the moment here, as elsewhere, is but the aggregate of all these external impulses impressed upon it to overcome its resistance to be moved with such a degree of celerity, and conserved in it, because of its constant farther resistance to suffer any change of that present state; and that, unless matter thus resisted a change of its state, and were impelled by some force *ab extra* to change it, no body would be heavy; and elasticity or repulsion would be without effect.

XXI. This also confirms what was said in N^o 10, that unless matter resisted a change of state, *the action of matter upon matter would be inconceivable, or rather impossible.* For there could have been no action where there was no moment, or force, to act; and there could have been no moment where there was no resistance; since (to repeat it once again) from N^o 19, it appears *that the moment of bodies is only their primitive resistance to a change of their state multiplied by their celerity; or the force equal to that resistance, necessarily impressed on them to overcome it, and retained by them.* Let us say then what would have been the result, if a body in motion had come upon other bodies at rest, and see if any consistent effect

effect could have been produced. Either it must have been stopped on coming to contact with the smallest atom, since it had no force to carry that along with it; and thus all the bodies in the universe, upon coming to contact, would have remained one motionless, torpid lump; or else, since other bodies had no power to resist, although it had no power to impel them, they must have all hurried on, through the immensity of space, in one uniform direction for ever. Thus it appears no consistent effect could have been produced; nothing that is intelligible or possible; and that the tendency in body not to change its state, not to be active, is yet the reason why body acts on body, as was asserted in N^o 10. and that without this stubborn inactivity, the material world, this great system of visible things, would have been something inconceivable and impossible; since motion in it could have had no possible effect. From this we might be led to see that matter must resist a change of its state of rest or motion, as it is a solid extended substance: but first let us stop a little, to see how far we have brought the controversy with the Atheist.

XXII. By what is said it appears that his
4
sinking

sinking cause is already reduced to a miserable dilemma, on either side of which it must inevitably perish. For either matter is *resisting matter*; or it is not. If it is resisting matter, it could never move itself, by what is said in N^o 14 and 15; since two conatus's mutually destructive of each other could never be planted in it; and if it is *unresisting matter*, it could never move other matter, by what has just now been said N^o 21. unless that other matter could be moved by nothing at all; and this though we should suppose it some way or other first moved itself. So that in either case matter can never become a self-moving substance; *no not by any power*, because it implies a contradiction; for unresisting matter could no more move the matter of a plant, animal, or of the human body, than resisting matter could. This deserves our notice. There is no less need of an immaterial Mover on the one supposition than the other; nor could such matter have been of any imaginable use in the material world. Unresisting matter is a yet more disadvantageous supposition to the Atheist, if possible, than resisting matter is. Nothing could have been effected by it. *Lucretius* could never have patched up his wretched universe out of such stuff. He is forced

forced to suppose gravity natural to matter; that is, by N^o 16. he supposes it resisting matter; and therefore such as wants an immaterial Mover. He supposes his matter eternal; which in the last section of these papers it shall be shewn not to be. He gives it a power of changing the direction of its motion; which, as has been shewn in N^o 11. of this, it has not. And, lastly, he makes his atoms infrangible to all power, which, as shall be shewn, they are not. If these four things had been denied him, he would have been forced to introduce an universal non-existence; for his casual world without these returns to nothing. In the supposition of resisting matter, motion might be in some degree communicated by one body to another, because of the resistance; but in the supposition of unresisting matter, every body that is moved, must want an immaterial mover, because of the want of *moment* in one part of matter to act on another part of matter. In short, I believe there is no man but is already convinced in his heart of the necessity of matter's being a substance resisting all change of state in itself; and of the impossibility that ever matter can become, by any power, a *living, self-moving being*. Who could have thought that mere passivity, and
want

want of power in a substance, should have been so useful, so necessary in the universe! But this always happens when we offer to mend the works of infinite wisdom ; we fall into nothing but downright contradiction (p).

After

(p) With respect to the reasoning in this paragraph, it is obvious, I think, that what is concluded of matter in general, must be true of any particular part of it : for what agrees to all possible parts, will agree to any one which a sceptic might pitch on to argue from. However, I take notice of this, because it hath been observed, *That my adversaries will not readily adopt a system of unresisting matter : but rather a system of resisting unactive matter, actuated by some small part, endued with particular powers and faculties, and particularly with a self-motive power.* And again, *That some may pretend, that matter may have been so made, as to have its inertia with a particular exception, or restriction, or that matter might have had its inertia with the exception of gravity.* In case of such an objection, it is replied, that all that hath been said from the beginning of the section is applicable to, and therefore may be understood to have been said concerning this small part, supposed to be endued with particular powers and faculties above the rest : and it must conclude against that part, how small soever, if it concludes at all concerning any part. As to this small part, I would ask, if it is matter at all? and then, if it is *resisting* or *unresisting* matter? If it is not matter at all, we have nothing to do with it : if it is matter, it must either resist or not resist. It is here supposed resisting matter, and such as acts on other matter ;
and

After this reasoning here, *let me desire the reader to reflect a little* on Mr. Locke's property

and that is, by all that hath been said before, matter utterly incapable of being endued with a self-motive power. If it is unresisting matter the supposing its resistance to motion taken away, makes it equally impossible that ever it should move any thing else. The sceptic is at full liberty to try to make a mover out of *unresisting matter*; and therefore out of matter in any shape he can put it in. Besides that the supposition of unresisting matter will immediately appear contradictory. As to the other faculties and powers mentioned (among which perhaps is meant Mr. Locke's thought and volition) it is too soon to come to these yet.

And now with what restriction or exception has matter got its *inertia*? If the resistance of it were but the hundredth or the thousandth part of what it is, the argument is still as demonstrative as if it were a hundred or a thousand times greater than it is. And when it is supposed to have none at all, the whole difficulty starts up undiminished in a new form.

I shall here obviate another evasion, which hath not yet been suggested, only because it is possible it may be, *viz. That unresisting matter doth not act by material impulse, contact, or pressure, as resisting matter doth, but by some other vertue or efficacy.* If this should be said, it is answered, that all matter is confined within a terminating surface, or surfaces, beyond which it doth not exist, and therefore beyond which it doth not, *cannot* act. Nothing can act where it is not. This is one of the plainest, most unexceptionable principles. To say a thing acts, and yet is not where it acts, is to say nothing acts there. Where a thing

ty of spontaneous motion superadded to matter, and consider how the possibility of that

is not, nothing at all is, no cause at all with respect to that thing; and if it were not for something else, no action or effect could be there produced. This lets us see that a *sphere of activity* taken in this sense, though it may be a learned word, is a real contradiction. Spheres of activity suppose either material action, or immaterial power exerted; or they are nothing but empty sound. Unresisting matter could not indeed act by *pressure*; it shall be shewn immediately, or rather it is self-evident, that upon *pressure*, nay upon the *approach to pressure*, it ought to shrink up, and be annihilated. It is not so much as capable of contact. It is the same as unsubstantial matter: the shadow, the name of matter only. Now this unsubstantial phantom, since it is incapable of contact, must, if it act upon other matter, act where it is not; that is, *not act* there: for, as I have said, matter cannot act beyond itself, or without its terminating surface. But perhaps a power, virtue, efficacy, faculty, (or what shall we call it?) gets once without the terminating surface, and entering the other resisting matter, overcomes its resistance. But in the transition from the one to the other, what is the *subject* of this *migrating power* or virtue? Power without a subject of inhesion is but the name of power. It could as well act where it is not, as the power of it act where it is not itself. Observe; the other resisting matter is incapable of receiving this transitive faculty to be lodged in it, as hath been shewn (N^o 14, 15.) Therefore such faculty should stand without doors, when it came, though we should suppose it capable of travelling so far alone.

hypothesis stands now ; but it is enough to have mentioned this here, since it will come in afterward.

XXIII. We shall conclude the necessity of the *resistance* of matter with greater evidence, see the connexion it hath with solidity itself, and therefore be more familiarly convinced of it, if we observe what use it is of both in our own and other animal bodies, in one particular respect, *viz.* that of *progressive motion* ; and from thence infer with respect to other motions both in animate and inanimate bodies. Though our bodies did not at all gravitate to the earth, nor were supported by it, as a *solum*, or *suslentacle*, yet the resistance it affords would be still absolutely necessary to our *progressive motion*. Every step we make, we push the earth from behind us, with our hindmost foot, to wit, and the resistance it makes, since action and re-action are equal, gives us our propensity, and drives us forward : whereas if it were unresisting matter, we should never be able to move, or even to creep, from one place to another. For either the earth would yield from our foot pushing, without communicating any action or force to it, and leave us disappointed of our aim,

so

so that the foot and the part it touched should never be able to separate; or upon giving the stroke, they would mix, and penetrate into one another's dimensions, and lose their extension; that is really, be reduced (in part) to nothing. Borelli, in the chapter *De gressu bipedum*, explains very naturally this whole appearance.—*Præterea* (says he) *dum innititur [homo] super duos pedes, fit motus promotionis centri gravitatis ejus, quatenus uno conto cruris postici elongati per extensionem pedis, impulso pavimento retrorsum, erigitur machina universa perpendiculariter super anticum alterum pedem firmum, & parum anteriùs impellitur; & sic motu transversali promovetur. Postea subito pes posticus elongatus à terrâ suspenditur, flexis tribus articulis coxendicis, genu, et pedis extremi, à propriis musculis, qui minus quartâ parte ponderis humani corporis suspendunt; et ab impetu concepto à præcedenti impulsu, et à flexione capitis et pectoris, ultra situm pedis firmi solo figitur. Quo facto secunda statio celebratur, et postea, eadem periodo, pes posticus operando gressum continuat (q).* We could not so much as creep,

—I say,

(q) *De motu animal.* part 2. prop. 158. See also prop. 156. *Quomodo in ingressu moles humani corporis anteriùs promoveatur.* Prop. 164. *Modus quo fiat incessus homi-*

I say, upon this supposition, from one place to another; for if we went on all four, as the quadrupeds do, there is manifestly a *pushing*, and *resistance*, to advance the center of gravity of the body, in that case as in the former. Or if we successively thrust forward our head, and the fore parts of our bodies and dragged up the feet and hind parts of them, as multipedous insects and worms do; besides the former resistance between the earth and the matter of our bodies, this supposes a resistance between the parts of our bodies themselves. When the lumbricus thrusts forward the fore part of its body, it is by the resistance between it and the hind part. How could this be, if matter were unresisting matter? The parts counter-acting each other, must sink in, and penetrate into one another's dimensions; or else remain in that state, motionless, and without possibility of advancing. In that case, when we thrust forward our hand (if we could thrust it forward) to catch any thing fixed and prominent, to help to drag up the rest of the body, every thing must yield;

num super glaciem. Prop. 168. Animalia sexipedia quomodo incedant: & prop. 13. part 2. Quo artificio mechanico lumbrici repere possint. It is evident also from this reasoning, that fowls could not fly, nor fishes swim, if the air and water did not afford them resistance. See *prop. 190 & 214. part 1.*

and

and really, for want of being able to resist, be reduced into non-extension. It is because matter resists, that it can be made firmly to cohere, or is susceptible of *tension*, *pulsion*, *pressure*. No motion can be without some of these, either when it is begun, or when it is again stopped ; nor therefore without the resistance of solid parts to solid parts.

XXIV. Moreover, supposing we were tied to no firm sustentacle, as the earth is, by the impulse of gravitation, but that a man were placed pendulous from any such great body ; as progressive motion would be then without means or foundation in nature, so any motion of the parts of his body among themselves, would be equally impossible. To extend the arm, or leg, supposes the trunk, or the rest of the corporeal moles, a *firm sustentacle* to afford resistance, and make motion possible: whence could this proceed, if matter gave way to the least pressure, or rather to no pressure at all? So the moving of the finger supposes the hand or arm ; or the moving of the tongue to speak, supposes the jaws, neck and contiguous parts, a *firm sustentacle* to supply resistance and re-action. The same is to be conceived of every internal action in

the animal œconomy; the motion of the *blood* and other *fluids*, the action of the *muscles*, of the *stomach*, *heart*, *guts*; in a word, every material action as material, and excluding the extraneous impulse of any immaterial agent, supposes re-action and resistance to make it conceivable. I can as well conceive that the shadow of my hand could wield, and move the pen while I write, as that my hand could do it, if the parts of it had no resistance. Therefore, whatever principle or hypothesis takes away resistance and re-action from matter, destroys *action* itself, and, in effect the nature of matter; for, as resistance supposes solidity; so contrarily, solidity supposes resistance; or, because the parts cannot yield to each other, therefore they must resist. This lets us see where resistance is ultimately lodged, and whence only it can be derived; it springs from *solidity*, and traced backward is found seated there. And this way also we again see, that upon the supposition that matter did not resist or re-act, that is, in effect, did not act, the organized body of an animal, or plant, (where there is a circulation of action and re-action, as well as of motion) would have been a thing impossible, as hath been observed before (N^o 8 and 22.)

XXV. From what has been said we may observe, how wisely animal bodies are tied down to this great body of the earth, by the constant impulse of gravitation ; for since there could be no progressive motion without the resistance and re-action of such a firm sustentacle, if by any cause or accident, a living creature were once detached from the earth, at whatever distance, it should be fixed there, as in fetters, without being able to return, or move in any direction. And this must happen, on many necessary occasions, both to man and beast. In running swiftly, in offering to leap, in making many necessary efforts, they would lose their hold of the earth, fly from it, and at length remain suspended, for want of something to resist their efforts to bring themselves down again (if the distinction of down and up did not then vanish ; which if it did, I omit to mark the influence it would have on the animal œconomy). Their whole body might perhaps turn some way on its own center of gravity, by the struggle of the limbs among themselves, between which a resistance and re-action would still be given ; but this would never advance the center of gravity itself, nor

therefore the whole body, to any side, nor in any direction. They would every where be found hanging, like flies caught in a cobweb, miserably starved to death. For the evil would be without remedy. If one offered to pull down another, by any means, they would meet at their common center of gravity, and there both remain fixed. One man might raise an hundred, without any of them being brought to touch the earth again ; if they were but an inch distance from it, they would still be miserable. With what fearful caution should we then tread on the ground, so as not to meet with any rebound from it ! How much are we indebted to the goodness and wisdom of God, who hath cemented his works otherwise, and wrought our security by wonderful power ! For there was no Epicurean necessity of the present constitution, but a great possibility of the contrary, even of this very case we are speaking of ; let us not then think it imaginary and impossible, for the contrary obtains not, but by the incessant action and power of this Being exerted, in producing a constant gravitation, as we see pretty clearly already, and shall see more fully hereafter. And then what goodness was it in our Creator, to make this our
earth

earth so massy and large (which is a disposition the Atheist finds fault with, as shall be shewn afterwards) that there might be no sensible proportion between it, and those creatures that were thus to move upon it; that it might not give way instead of resisting and re-acting, when *herds, armies and elephants* want a firm obstacle to push them forward in their progressive motion! If a living creature were to move on a mass of matter nearly of its own bulk, there would be a mutual *yielding* and *rolling* between them; although they were impelled to each other by a constant gravitation. And this would be always inconvenient, as long as there were any sensible proportion between the *animal* and the *sustentacle*. But as it is, though our earth is pendulous in the midst of heaven, our action is exerted on it as against a *firm basis*, because of its bulk and massiness.

XXVI. To return then to where we left off in N° 21, *viz.* to shew that matter as a solid substance must necessarily resist all change of its state of rest or motion; it follows from the argument there mentioned, if it did not thus resist, that then two contradictory propositions would both be true. For the least

atom in motion coming upon any quantity of matter at rest, the whole terraqueous globe, *v. g. must necessarily carry that whole mass along with it*, with the same celerity; because it makes no resistance to be put out of a state of rest; and yet *could not carry it along*, making no resistance itself to continue in its own state of motion, and therefore not acting; action being the effect of resistance. Thus the same proposition would be both true and false at once. Let us suppose again two equal bodies encountering each other directly, and with equal celerities; these meeting must stop each other, or penetrate into one another's dimensions. One of these must certainly be granted. If the last, matter is an unextended substance, the *phantom* or *shadow* only of solidity: if it is said they are stopped, here is a plain positive effect produced, by no action or cause, by nothing, which is a very express contradiction. By supposition this is not the action of matter upon matter, there being no resistance on either side; and there is nothing else to which the action can be ascribed. Again, since action, pressure, and resistance are the same thing; and since matter on this supposition, is incapable of action or resistance, it is equally incapable of pressure,

sure, as in N^o 23 and 24, which surely is resistance. So matter by simple pressure (or rather upon the approach of pressure) would shrink up and be contracted into less dimensions (*r*) ; and this still farther and farther.

Thus

(*r*) I shall endeavour to give an example to illustrate this shrinking up by pressure, because it is said it seems obscure. When a man leans on his stick, there is a mutual pressure upwards and downwards between all the contiguous parts of it, through the whole length of it, if it resists at all. Now if we suppose it not to resist, or if the resistance were not continued from the one end to the other by this mutual pressure, he would have no support : or if the two extremes made resistance, and the middle part none, that mid-part would shrink up till the two resisting parts met. This seems plain enough. I for my part cannot conceive, if it made no resistance at all, that it would either suffer pressure, or be of more use to him than the shadow of a staff. And it is the same thing in any case where motion is begun in a body, or stopt in one. The resistance in either case supposes a mutual pressure of all the parts contiguous to each other, through the whole solidity of the body. If matter therefore is denied to resist, it is made incapable to bear pressure, even though it were at rest, as in the case of the staff ; or the solidity of it is taken away. For it is very observable, I think, that this resistance and pressure obtains even where there is no motion ; as in a heavy body when it lies on the pavement ; all the parts press mutually on each other, and therefore make a mutual resistance. And further, from such an in-

stance

Thus such unresisting matter might be quite annihilated by pressure, or rather without it, because there is no resistance or repressure. That is, it might be annihilated by nothing; that is, it is not an impenetrable extended substance. Therefore I conclude that matter as a substance solidly extended must resist all change of its state of rest or motion; and that this resistance is as inseparable from it as solid extension is.

XXVII. Because the great hinge upon

stance as this it can be shewn, that this pressure is propagated through the whole terraqueous globe: for the parts of the pavement immediately in contact with the heavy body press against and resist it; and the parts in contact with these press against and resist them; and so on, as long as there are any parts in contact with the parts pressed: for the pressure can never be against nothing at all; that is absurd: there would be then action without re-action: and if any parts could not resist, or bear pressure, these would shrink into nothing, and leave the resisting parts to meet. It is very much to be doubted whether there be any matter in the world but what suffers some kind of pressure or other, and therefore makes resistance. Even in the cohesion of matter, the parts are impelled to one another, and therefore resist by their impenetrability. Resistance therefore is not only made in the congress and shock of moving bodies, but, which is less attended to, in all bodies, and at all times, whether in rest or motion.

which

which all turns in the present subject, is the proving that a *vis inertiae*, or resistance to a change of its present state of rest or motion is essential to matter; let me be permitted to give another very short and easy way of bringing out this conclusion, which is as follows. Matter resists either by its *internal constitution*, as it is a solid extended substance; or from the influence and operation of *something external*. To begin with the last of these, if matter resists from the influence of some external cause, it is either the power of an *immaterial Being* constantly exerted upon it, or from the *impulse* of other matter. Now if any man, in order to avoid being forced to own that resistance is essential to matter, should say *it resists by the power of an immaterial being constantly exerted upon it*, that way he incurs the very thing he would deny, and which I contend for. And it would be strangely perverse to deny the resistance of matter, lest the existence of an immaterial Being should be evinced; and yet to own an immaterial Being, in order to deny the resistance of matter. This therefore cannot be said; but if it should, the cause is given up. And if one should say in the next place, *that matter resists not internally, but by the external impulse*

impulse of other matter, he affirms a direct contradiction: for both the kinds of matter in his supposition (the matter *impelling*, and the matter *impelled*) must be supposed to *resist* in this very impulse, or to *resist internally*, otherwise the impulse could have no effect. Thus it appears it is not in an adversary's power to suppose matter resisting otherwise than by its internal constitution, or as it is a solid extended substance. And if we should suppose the power of an immaterial Being constantly exerted upon matter, to make it a *resisting substance*; this can be no other way than as his power is constantly exerted upon it, to make it a *solid substance*. Therefore I conclude, as before, *That resistance, or a vis inertiae, is inseparable from matter; or is as essential a property of it as solidity.* And therefore all the reasoning from the beginning of the section hitherto, so far as it was *conditional*, or depended upon proving that the *vis inertiae* was essential to matter becomes now *absolute* and *demonstrative*. And whatever other truths, or consequences, can be fairly drawn from this *principle* hereafter, must be such as we may confidently rely upon.

S E C T. II.

The consequences of the want of active powers in matter, viz. that all those effects commonly ascribed to certain natural powers residing in matter are immediately produced by the power of an immaterial Being. Hence a constant and universal Providence in the material world, extending to the minutest things: Hence the necessity of an immaterial Mover in all spontaneous motions, &c.

THE consequences of the truth established in the last section are of great weight both in *religion* and *philosophy*; therefore I beg leave still to proceed at leisure from one of these to another, and to be particular in deducing them. And, first, the chief consequence that offers to us from what hath been said hitherto is, *the necessity of an immaterial powerful Being, who first made this dead substance matter, originally impressed,*

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pressed, and still continues to impress motion
upon it. The first thing that appears in his
nature, as he is thus discovered, is his *imma-*
teriality, being the powerful *Creator* and
Mover of matter ; for it is already evident,
and shall still be made more plain, that such
a *powerless, dead substance*, as matter, must
owe its existence to *something else*. Spinoza's
absurd assertion, *That everything in the world*
was God, or that nothing but God could ex-
ist (a), included in it this plain contradic-
tion of making the effect the same thing with
the cause, and confounding the *most opposite*
natures in the universe. For it is absolutely
impossible that the same being [God] should
be both material and immaterial ; or void of
all power, as matter is, and at once the ori-
gin of all power, as an immaterial Being
must be. But particularly it appears from
what hath been said, how contradictory
Hobbes's opinion is, who asserts *that there is*

(a) *Præter Deum nulla dari, neque concipi potest sub-*
stantia. Ethic. Part. 1. prop. 14. Una substantia non
potest produci ab alia substantia. Ibid. prop. 8. Ad na-
turam substantiæ pertinet existere. Ibid. prop. 7. Res
nullo alio modo, neque alio ordine à Deo produci potuerunt,
quàm productæ sunt. prop. 33.

nothing

nothing but matter in the Universe (b). For if there were nothing in the Universe but a substance which resists all change of its present state of rest or motion, or to which a *vis inertiae* is essential, it is certain no change of state could ever have been effected, *nor would there have been a substance in nature to which active power could have belonged.* And universally, as every other kind of atheism asserts matter to be endued with certain *original powers*, which may supply the absence of a Deity, or of immaterial Being, in the world; this sort of reasoning concludes equally against them all, by shewing the impossibility of all their *hypotheses* at once: and this is obvious to any person, without farther arguing. So that to begin with examining

(b) In the 46th chapter of his *Leviathan* he says, The world (I mean not the earthly one, that denominates the lovers of it worldly men, but the universe, that is the whole mass of all things that are) is corporeal, that is to say body; and hath the dimensions of magnitude, namely, length, breadth, and depth: also every part of body is likewise body, and hath the like dimensions; and consequently every part of the Universe is body, and that which is not body is no part of the Universe. And because the Universe is all, that which is no part of it is nothing, and consequently no where, &c.

the nature of matter, and shewing its *inactivity*, makes the shortest work with Atheists of all denominations. And this is a more effectual method, I think, than to deny the existence of matter altogether, in order to confute Atheists. Besides, from this way of first discovering the Deity, a more surprizing scene of providence will immediately appear, than from any other kind of argument we could have made use of. In order to this, the consideration of the nature of matter shall be farther pursued; the several instances where the power of an immaterial Being is exerted upon it, particularly shewn; and the effects, commonly but falsely ascribed to *certain powers* in matter, shall be restored to their *proper causes*, as in right philosophy they should: which method must of course carry us into a variety of subjects, and through a great part of natural philosophy.

II. To begin from the universal resistance of matter as it is a solid extended substance; from this we may satisfy ourselves of the absurdity and falseness of an universal *Plenum*. For, passing by at first *Lucretius's* reason [*Principium quoniam cedendi nulla daret res*],
if

if there were an infinite plenum, or even but a finite one in any part of space, supposing the matter as subtile and fluid as possible; since as impenetrable it must resist, (N^o 26. sect. 1.) and that both in proportion to the celerity with which it was struck, (N^o 4.) as also to the quantity of it, or number of particles to be struck at once, (N^o 6.) the fluid being the densest possible, as without any vacuities, by supposition; the resistance would be the same in the open air, or in an exhausted receiver (if it be not absurd to speak of exhausting on that supposition) as in water, or mercury (*c*); which is absolutely contrary to experience.

(*c*) Dr. Pemberton, in his Review of Sir *Is. Newton's* Philosophy, B. 2. c. 1. sect. 14. speaking of this says,
“ And whereas such a fluid whose parts are absolutely
“ close together without any intervening spaces, must
“ be a great deal more dense than water, it must resist
“ more than water in proportion to its great density;
“ unless we will suppose the matter, of which this fluid
“ is composed, not to be endued with the same degree
“ of inactivity as other matter. But if you deprive any
“ substance of the property so universally belonging to
“ all other matter, without impropriety of speech it can
“ scarce be called by that name.” He might have gone
farther, I think; for an infinite plenum of matter that

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experience. But really, in an absolute plenum, the distinction between *fixedness* and *fluidity* would be lost; and we might as well conceive a fish to swim, or a bird to fly, in the heart of marble or adamant, as in such a plenum: and then *Lucretius's* principle takes place.

III. Moreover, since all bodies encountering in opposite directions, mutually diminish or destroy the quantity of motion in each other; for opposite forces, if equal, beget an equilibrium, and rest; or, if unequal, the excess of the greater above the less only remains; and since this obtains, though in a less degree, when they impinge obliquely (N^o 11. sect. 1.) it follows, *That from all action of body upon body motion is still impaired, and the quantity of it constantly decaying in the universe.* And here let me intreat my Reader

could not resist, nor consequently re-act, would, according to the reasoning in N^o 26. sect. 1. upon pressure (or rather without it) shrink up into less dimensions: and one single stroke would annihilate as much of it, as where the pressure would have been otherwise propagated: that is, I conceive the whole of it in an absolute plenum. And then indeed it would have been matter in no propriety of speech.

to

to examine this conclusion well, and if it is rightly inferred, to admit it, and the consequences of it, honestly. Now since matter cannot re-excite the motion in itself; it follows that as an immaterial Power first impressed motion on matter, so it still reproduces the motion lost, and makes up the decays sustained. And upon this account, neither the Epicurean, nor any other atheistical system of the universe, could have been eternal, where there is no immaterial Mover to repair the decays of motion. One of the most wonderful ways, to us, of exciting lost motion in matter (if one way were more wonderful than another) is that of elasticity. The force of restitution is an immediate impression by an immaterial Mover; for it resists this impression, as its having *moment* in its resiliency shews (see N^o 19. sect. 1.) But often from the congress of such bodies, more motion is excited, than was in them before the shock. *Huygenius* hath demonstrated, among other surprizing properties of the congress of such bodies, that if a series of them were placed so, that they might impinge on each other directly, their quantities of matter being in a geometrical proportion, and if

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the least is impelled against the next greatest, the quantity of motion will be increased in each of them to the last. Now if there be a hundred bodies in the series, and if the quantity of matter in each be double that in the former, the smallest in the series being impelled against the next greatest, the quantity of motion, or force, in the last, will be two million of million, three hundred thirty eight thousand four hundred and eighty six million, eight hundred and seven thousand six hundred and fifty six times greater than it was in the first: or the force in the last will be to that in the first, as the number 2,338486,807656.13 to 1. (*d*). This number

(*d*) Let the bodies be A, B, C, D, &c. and as 1, 2, 4, 8, &c. if the distance betwixt A and B is called 1, the distance of the center of gravity from B will be $\frac{1}{3}$. The velocity of this center before the shock is as $\frac{1}{3}$, and as $\frac{1}{3}$ after it; and the distance of B from it as $\frac{1}{3}$ at the same time. The whole velocity of B is $\frac{2}{3}$, and the matter of it as 2; so its moment is as $\frac{2}{3}$. Just so, the velocity of the center of gravity betwixt B and C, is $\frac{1}{3}$ of $\frac{2}{3}$ (B's celerity) or $\frac{2}{9}$; and C's celerity double that, or $\frac{4}{9}$; its matter as 4; its moment therefore as $\frac{16}{9}$. So D's celerity is $\frac{2}{3}$ of (C's celerity) $\frac{8}{9}$, or $\frac{8}{27}$; its matter 8; and its moment $\frac{64}{27}$, &c. Thus the several moments in the last 99 bodies are the several powers of $\frac{4}{3}$; and

ber upon trial will be found exact, I presume; so that if the first was impelled with
but

of the last it is $\frac{1}{31}^{99}$, which number is 2,338486,807656. 1299712, &c. The velocity is just as much increased, if the motion begins at the greatest body. Mr. *Herman* (*Scholium Prop. 42. lib. 1. of his Phoronomia*) hath somewhat a different number, viz. 2338520-732310; but it is by taking the logarithm of equal to 0.1249388; whereas, carried to more places, it is 0.12493873660829995, &c. The second number which he hath in the same *Scholium*, viz. 27103713-483146067 should be 27104078502347682, for a like reason; which is the decrease of the velocity, if the motion begin at the least; or of the moment, if it begin at the greatest. See also Mr. *Whiston* concerning this, Lect. 5th, on Sir *Is. Newton's* mathematical philosophy. His numbers and account are something different; but he concludes thus: "Where (says he) in the former case
" is seen a most prodigious increase of celerity; and in the
" latter, a more stupendous augmentation of the quantity
" of motion." So far is the *Cartesian* notion from being true, that the same quantity of motion is always preserved in the world. See with respect to this *Wolffius's Element. Mechan. Theor. 85.* and the *Scholium* of it. Indeed it is plain to the sense, that from the action of bodies upon bodies, motion is still decaying in the universe, and reason establishes this still more authentically. If two bodies encounter with equal force, it is extinguished in both sides; and this is no less true when they are *elastic*, than when they are *unelastic*. The motion

but as much force as the strength of a child could impress, the force in the last would be inconceivable. The battering rams of antiquity, or the modern cannon would scarce help us to form a notion of it. How then is it possible to conceive that poor sluggish matter should so prodigiously increase the quan-

is certainly once wholly extinguished in both cases; *for if contrary force doth it in one case, it cannot not do it in the other*, be it re-excited what way it will: and if matter cannot move itself in any case, it cannot move itself here: whence the conclusion is obvious. As I have said above then, I wish men would examine this argument on all sides; and if they cannot find a fault in it, that they would embrace the consequences of it with a philosophical ingenuity. I am of opinion, and think it would be easy to shew it, if one had leisure to run through the several particulars, that unless *an immaterial Power* continually re-excited motion in the material universe, all motion would stop in it, in a very short time, perhaps in less than half an hour, except that the planets would run out in streight-lined directions. And then what a face of things should we have! Darknefs, silence, and unsuccessive rest. For certainly matter of itself *can pursue no end, obey no law, nor change the direction* of its motion, nor any way *alter its present state*: and since in all motions in the universe *an end is pursued, a law obeyed, the direction changed*; and since in all the remarkable phænomena of nature there is a circulation of motion; the truth of what I here suggest must be pretty obvious to any thinking person.

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tity of motion in itself, without a foreign cause, an immaterial Power! And yet rightly considered, this is not more wonderful, than that a stone, as soon as one lets it go, should begin to move to the earth, and still rush forward with a greater and greater rapidity. If this last motion were seen but rarely, the schools of philosophers would have been full of it: nor is there any one so little curious, who would not go far to see such a rare sight, if it happened but once a year. But the mere difference of happening *frequently* or *seldom* cannot change the nature of a thing truly wonderful in itself. The constancy of an appearance is not a mark of the fatal necessity of it; but of the goodness of that Being who makes it constant for our benefit; which is the present case, as was said above, N^o 25. of the last section.

IV. As elasticity in general hath something very surprizing in it, so that of the air deserves our particular notice. What is called elasticity, or spring in the air, is only a repulsive force exerted between its particles (*e*).

For

(*e*) See *s'Gravesande's Introdūct. ad Phil. Newton.*
l. 2. c. 13. Experiment. 3. and the reasoning upon it,
where

For if a certain quantity of matter, as the compressed air in a condensing engine, exerts a force to dilate itself every way (speaking after the common manner, as if it were active) and take up more room, the parts of it have a tendency to recede from each other. No sort of attraction can explain such an appearance. Nor will little elastic convolutes, rolled up like the spring of a watch, nor small globules replenished with yet a more subtil elastic matter, agree with the perfect fluidity observed as much in all degrees of the compression of the air, as in its dilatation (*f*): not to mention that these hypotheses

where he says, *Sequitur aërem constare ex partibus sese mutuò non tangentibus, & sese mutuò repellentibus. Talem particularum proprietatem in multis occasionibus detegi jam vidimus; illamque & hinc obtinere satis patet; causa verò hujus nos omnino latet, & pro lege naturæ ipsa habenda est, ut ex dictis inter N^o 4 et 5 liquet.* In which place, as much is meant, I believe, as I here express; viz. that the repellency between the particles of air is the immediate effect of the power of God. He says after N^o 4. *Nostri enim respectu non interest an quid immediatè à Dei voluntate pendeat, an verò mediante causâ, cujus nullam ideam habemus, producat.*

(*f*) *In omni enim expansione, aut compressione, particulæ facile moventur inter se.* Idem ibid. And Sir *Is. New-*
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theses explain elasticity *by elasticity*. Whence the particles of air must repel, and keep each other at a distance : and the repulsive force must be conceived to be between every particle alike. For if it were not, the greater force would still prevail on the less, disposing the particles at equal distances, till an equilibrium were settled through the whole mass. Therefore any quantity of air, how little soever, repels all the rest as strongly, as it is repelled by it : or the force of any part *counteracts* the force of the whole mass. This force is equal to the weight of the whole superincumbent atmosphere ; or the weight of a column of water thirty one feet high, or

ton speaking of this, (*Opt. p. 371, edit. 3.*) says, “ It
 “ seems also to follow from the production of air and
 “ vapour. The particles, when they are shaken off
 “ from bodies by heat or fermentation, so soon as they
 “ are beyond the reach of the attraction of the body,
 “ receding from it, and also from one another, with
 “ great strength, and keeping at a distance, so as some-
 “ times to take up above a million of times more space
 “ than they did before in the form of a dense body.
 “ Which vast contraction and expansion seems unintel-
 “ ligible, by feigning the particles of air to be springy
 “ and ramous, or rolled up like hoops, or by any other
 “ means than a repulsive power.”

of a column of mercury twenty eight inches high, and whose base is the same with the portion of the air we take (g): and this when the air is not compressed, but in the same state with the outward atmosphere. Now the use that I would make of this is, to shew that, abstracting from the reasoning in N^o 14, 15 and 16. sect. 1. this is another contradictory appearance, unless we call in an immaterial Mover, that a thin film of air (for the whole force must be lodged in that, by what was said just now) of a foot square, v. g. whose natural resistance doth not amount to one grain, should yet resist, and support a weight, that might be a load for an elephant. The weight of a whole cubic foot of air is but about 506 grains, and the weight of such a film would scarce be a 506th part of that (h); and the pillar of water, or

(g) *Wolffius, Element. Aërometricæ, theor. 1, Elater aëris inferioris æquatur ponderi totius superioris ipsi incumbentis. And cor. 1. Quoniam pondus aëris superioris inferiori incumbentis æquatur ponderi columnæ aqueæ, cujus eadem cum voluminæ aeris basis, sed altitudo triginta unius pedum, vel etiam columnæ mercuriali, cujus altitudo 28 digitorum; elater aeris inferioris eidem columnæ aqueæ, & mercuriali equatur.*

(h) *Ibid. probl. 5. Invenire pondus unius pedis cubi aëri*; and the scholium of it.

at-

atmosphere, supported weighs about one thousand nine hundred and eighty four pound, (a cubic foot of water weighing about 64 pound.) But if we consider that the elastic force of the air is reciprocally as the volume into which it may be compressed, and that five, six, or seven atmospheres may be thrown into the condensing engine (*i*), this single grain of air makes a resistance that would support several tun weight. And all this at a distance, and without material pressure or action, or coming into actual contact with the weight so sustained: so certain is it that an invifible hand intervenes here ! Nothing can act where it is not ; nor therefore matter beyond its own terminating surface. No human power, or invention, could bring the particles of air into actual contact, like those of water. They would then resist like those, and gravitate equally perhaps. It is no less than a downright contradiction that the less the particles of matter are, their force and action should be the greater. The very contrary of this is evident. Matter can only re-

(*i*) See *ibidem* theor. 9. *elateris aeris compressi est ad,*
&c. and Mr. *Hawksby's* experiments.

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sist in proportion to its quantity ; and that by actual pressure and contact. That a slender film of air should support a weight greater than the massiest beam could, without touch or pressure, is plainly impossible. Let me endeavour to render this appearance obvious and familiar, by a plain and easy comparison. If the leaves of a book, all in a parallel situation, and without coming to touch each other, should support a weight of many thousand pounds, even without touching or having any communication with it ; no body would say that the power of some other Being was not exerted in performing such an effect ; for every one of these leaves would concur as little in it, as if they were not there. And such an effect is performed hourly, constantly ; round us, over our heads.

V. If then we lay together what hath been concluded N^o 14, 15, 16, 17, 26 of the last sect. and N^o 3 and 4. of this ; it follows that whatever matter is said to *attract*, whatever matter is said to *repel*, whatever matter is said to *restore* itself ; whatever matter is *heavy*, or tends to a center, whatever matter is *light* (which is but comparative heaviness, and per-

haps all these various motions are reducible to attraction and repulsion); in a word, matter of all sorts, is but a dead substance in these effects; and it is another Being that performs all. And therefore the *descent* of heavy bodies by gravitation, or (again) by the laws of hydrostatics (which are but the methods of gravitation as it obtains in fluids) the *running* of rivers, the rise of vapours, the *fall* of rains, the *motions* of the clouds and wind, the *rolling* of the waves; in short *all* the *motions* we observe in the heavens, or on the earth, except the spontaneous motions of animals, and the immediate consequences of these (of which exception yet more hereafter) are the *immediate work of the first cause*; as also the production of all vegetable and animal bodies, and all the mechanical motions that exist in these when produced (of which also more by and by) are to be ascribed to his immediate efficiency and power. For all these, without exception, are but the *effects* of the *natural powers* of matter (as they are called) and those powers are no other than the forces *immediately impressed by him*, in certain circumstances, to overcome its resistance to motion; and called natural powers, because of the
constancy

constancy and regularity of the effect, the circumstances remaining the same (*k*): This
is

(*k*) The invariableness and constancy of these effects, is the reason, I think, why we generally fancy them the action of matter upon matter only: but as I said lately, the constancy of an effect is no mark of the necessity of it, but of something else, (see N° 3. of this.) It is an unaccountable prejudice to be entertained by reasonable men and philosophers, that *no designing cause*, but such a *passive* and *necessary* one as matter, could observe such regularity and proportion! We ought to make just the contrary conclusion: for a designing, intelligent Cause is necessary in all proportion and regularity. (The work of chance and dead matter could not be so qualified.) And this is not only in the first institution of the proportion, but in the constant observing of it. The action of gravity decreases, as the squares of the distances between the gravitating bodies increase: As this is an arbitrary institution, which no mechanism can account for; so no man, I believe, that seriously reflects upon it, can imagine that it could be mechanically observed. It is this very particular therefore that establishes the contrary of what is commonly drawn from it. Dr. *s'Gravesande* says, in the place cited above, at N° 17. sect. 1. *Sed illam [gravitatem] non sequi ex ullo impetu, juxta leges nobis notas, clarè patere contendimus.* What cause is so proper to act *regularly* in certain circumstances, and *proportionably* at certain distances, as an infinitely powerful and knowing one? Indeed if we were to impress a force on but one single particle of matter, it would be impossible for us to observe such a regularity and proportion,

is a surprizing, active scene; quite different from *Lucretius's* view of nature — *Totum video*

tion, without exceeding, or coming short. And hence (though there is no consequence in arguing from us to him) we think no intelligent being can perform such an universal effect. Hence again, what we think the power of no being can reach to, we ascribe to a cause void of all power, dead matter and blind necessity, as the likeliest to perform great things! This is not as it should be; philosophy bids us seek out an adequate cause for every effect, which certainly we shall find, if we reason rightly; for there is not a defect of reason in the nature of things. Explain the present phenomenon how we will, we must still have recourse to this Being, for the proportion and regularity of it, both in the institution and observance: no shift, no sophistry can save us from this necessity. It is in our power, it is said, to excite electricity in amber, wax, glass; to hammer steel, or heat it in the fire again. Not to enquire minutely here what it is we do, or how much of the effect we perform; I say all this is true, nor see I any inconvenience from it. There is no difference, as to the regularity, between exerting the power immediately himself, and planting it to be regularly exerted by matter, if that were otherwise possible: and it will appear I hope, that this is not the only instance, where the infinite power of God condescends to act upon our spontaneous election, (see N^o 21 of this) and this without any ill consequence in philosophy. If there are certain effluvia excited by rubbing amber, glass, &c. that drive away, or bring nearer, light bodies; which is not impossible; yet what attracts or repels these effluvia? They are still sluggish, inert little bodies that resist all change

video per inane gerires,—where chance and dead atoms manage the business of the world!

The of state. We can neither proceed *in infinitum*, to other and other effluvia; nor find the first moving principle in matter of any sort.

Upon the preceding reasoning, and the whole subject of this paragraph, it hath been observed, “That by my zeal
“to find more than mechanism in nature, some will think
“I take too much of mechanism away, while on every
“occasion I make immaterial principles interfere, which
“I should rather reserve, *cum dignus vindice nodus*: and
“that upon this account this argument, in the present
“disposition of it, will be apt to shock many readers.” But it is answered, that since the particulars mentioned in this paragraph are the consequences of that principle laid down in N^o 14 and 15, and afterwards concluded N^o 26 of the last section; if there were any hazard in owning them, then indeed my adversaries could press them upon me, and make me stand by them, or relinquish the principle that infers them. If that principle is allowed then, I cannot abandon these consequences of it. And if it is wrong, it would be foolish in me to think such a piece of sophistry should pass undetected. All therefore turns on that. As to mechanism, I shall consider it as exactly as I am capable of hereafter. Only let me observe here, that I am not singular in advancing these things: a much greater man carries the argument just the same length. Let it be allowed me to transcribe the passage. It is in Dr. Clarke’s *Demonstration*, &c. part 2. p. 300. edit. 4. and p. 221. edit. 6. *All things that are done in the world* (says he) *are done either immediately by God himself, or by created intelligent Beings: matter being*

The admirable mechanism discovered in the structure of a plant or animal, is not only the effect of his wisdom and skill in the first contrivance, but the minutest office in the œconomy is *incessantly performed* by his almighty finger. His power is still working *near us, round us, within us, in every part of us.* And this we may be assured of, if demonstration is to be relied on. In those fright-

evidently not at all capable of any laws or powers whatsoever, any more than it is capable of intelligence; excepting only this one negative power, that every part of it will always and necessarily continue in that state, whether of rest or motion, wherein it at present is. So that all those things which we commonly say are the effects of the natural powers of matter and laws of motion; of gravitation, attraction, or the like; are indeed (if we will speak strictly and properly) the effects of God's acting upon matter continually and every moment, either immediately by himself, or mediately by some created intelligent Being: (which observation, by the by, furnishes us, as has been before noted, with an excellent natural demonstration of Providence.) Consequently [pray let the following words be marked] there is no such thing, as what men commonly call the course of nature, or the power of nature. The course of nature, truly and properly speaking, is nothing else but the will of God, producing certain effects in a continued, regular, constant, and uniform manner: which course or manner of acting, being in every moment perfectly arbitrary, is as easy to be altered at any time, as to be preserved.

ful things, *storms* and *tempests*, those which look likest the want of government in the world, *earthquakes* and *volcano's*; this truth lets us see the God of nature, wisely, knowingly, for the best purposes, *pushing, ordering* every particle and every atom. Wisdom and knowledge preside even there; and all will be well. He hath not given the reins of the world out of his hands; nor planted the laws by which it is to be governed, in brute-matter. To say he hath lodged in matter, certain powers, whereby events are to be directed, is but one degree removed from Epicurean necessity (*l*); and to say he still superintends

(*l*) I here beg leave to cite another passage from the same author. It is part 2. p. 16. edit. 4. and p. 14. edit. 6. Let from the beginning of the paragraph be read; what is to the purpose here follows: *For not to say that, seeing matter is utterly incapable of obeying any laws, the very original laws of motion themselves cannot continue to take place, but by something superior to matter, continually exerting on it a certain force or power according to such certain and determinate laws; 'tis now evident beyond question, that the bodies of all plants and animals, much the most considerable parts of the world, could not possibly have been formed by mere matter, according to any general laws of motion. And not only so; but that most universal principle of gravitation itself, the spring of almost all the great and regular inanimate motions in the world, answering (as I hinted*

intends the execution of these powers himself though it is more pious, is scarce better philosophy; for besides the impossibility of planting powers in matter inconsistent with the nature and essence of it, a Being, who by the excellency of his nature, is necessarily every where present, all-knowing and almighty, doth not want to be relieved of a part of the task. Such philosophy suits only *Lucian's* deities.

VI. This point of a constant impression made upon matter *ab extra* is wonderfully plain, if we consider the motion of the earth

I hinted in my former discourse) not at all to the surfaces of bodies, (by which alone they act one upon another) but entirely to their solid content; cannot possibly be the result of any motion originally impressed on matter, but must of necessity be caused by something which penetrates the very solid substance of all bodies, and continually puts forth in them a force, or power entirely different from that by which matter acts on matter. Which is, by the way, an evident demonstration, not only of the world's being made originally by a supreme intelligent Cause; but moreover, that it depends every moment on some superior Being, for the preservation of its frame; and that all the great motions in it are caused by some immaterial Power, not having originally impressed a certain quantity of motion upon matter, but perpetually and actually exerting itself every moment in every part of the world.

and planets. Those prodigious masses of matter simply propelled, though that alone requires some *almighty Mover*, would move on for ever through the endless regions of space, in one uniform direction; since by N^o 11. of the last they as much resist a change of the direction, as of the quantity of their motion, these two being really inseparable. But rolling round as they do, they are continually turned in from this direction, and a new one is impressed upon them every instant; or the resistance they make to change the direction is overcome incessantly. It would not be enough to overcome it in any one instant, since they would immediately cease to roll round. When a stone is whirled round in one end of a string, the other end of which is held in the hand, it is thus kept changing the direction continually, and not by any tendency in the stone itself; for if left to its own tendency, it flies off in a line touching the curve it describes in that point: it is the action of the string upon it that begets this constant change of direction. Just so, any great body in the heavens, revolving about a central body, would incessantly fly off from its orbit, if the *power* of the *first Mover*, answering to the action of the

the

the string in this familiar instance, did not keep it in. In circular motion nothing is more certain than *centrifugal* force; that is a tendency to leave the circular motion, and run on in a strait line; and therefore nothing is more certain, than a *centripetal* force in such motion, that is an extraneous power impressed to overcome this tendency, and bring it incessantly back (*m*). If we should say with *Des Cartes*, that a fluid circulating round might overcome the resistance of a re-

(*m*) I cannot help thinking that the ancient sage *Pythagoras*, considering he was no ordinary geometer, and the first author of the *Copernican* system, had this very centrifugal force, and contrary centripetal impulse in view, who, after having asserted God to be *νῆς καὶ ψύχωσις τῶν ὅλων*, adds, that he is, *κύκλων ἀπάληον κίνησις*, the motion, or mover of all circles. Indeed a circular motion is (if I may be allowed such an expression) a circle of wonders. But I must quote this whole passage of *Pythagoras*, as I find it cited before his *aurea carmina*.

Ὁ μὲν Θεὸς εἷς, (says he) αὐτὸς δὲ ἔχ' ὡς τινες ὑπονοῶσιν ἐκλῆδες τῶς διακυσμήσεως, ἀλλ' ἐν ἑαυτῷ ὅλος ἐν ὅλῳ τῷ, κύκλῳ ἐπισκοπᾷ πάσας τὰς γενεσίας ἐπὶ κρήσις ἐὼν τῷ, ὅλων ἀιάων, καὶ ἐργάτας τῶν αὐτῶν δυνάμεων καὶ ἔργων ἀρχὰ πάντων· ἐν ἐν ἐράνῳ φωτὴρ καὶ παύλων παύρη, νῆς καὶ ψύχωσις κ. τ. λ. What means this ἐργάτας τῶν αὐτῶν δυνάμεων καὶ ἔργων? What I then assert through this whole section is no new notion, if *Pythagoras* asserts that God himself is the exorter of all his own power; which I think these words import.

volving planet to change its direction; besides the other inconsistencies in such a supposition (*n*), it is observable that this but multiplies the necessity of the action of the first Being, out of an unwillingness to admit it. For that centripetal impulse, which is necessary to be given to the revolving body in every point of its orbit, must be supposed to be given here to every part of this fluid, in every point of its revolution; since it is supposed a fluid, and not a continuous, solid mass. The evasion contrived for this, *viz.* an universal Plenum, whereby the extreme parts of any vortex are kept in by the confines of the neighbouring vortices, hath been shewn to be false, N^o 2. of this. And allowing it were true, the motion consumed by attrition at the extremes, ought to be renewed at the center by the power of the same Being (*o*). There is also this particular that merits our attention in the motion of these great bodies, that it is this centripetal impulse that keeps the projectile force con-

(*n*) See what Dr. *Pemberton* says of this, in his *View*, *Œc. b. 2. cō. 1. sect. 2.*

(*o*) In the same place he says, “There is another
“ remark made upon this motion by our author; which
“ is, that some vivifying force would be continually ne-
“ cessary at the center of the motion.” stantly

stantly in vigour; for between every last centripetal impulse, and last projectile force, a new projectile tendency is generated. If it were otherwise, that is, if the direction were changed in every part of the orbit, and no new centripetal force impressed, to help to generate a new tendency along the tangent; which, I think, implies no contradiction to be supposed (*p*); no body could perform above half a revolution, let the first projectile force impressed be as great as it can be supposed: for it is contradictory to suppose that one individual impulse should make it move in two opposite directions; as it ought to do at the two extremities of the same diameter of its curve. Therefore in this motion, thus considered, there is a constant impairing of the

(*p*) If a firm unelastic obstacle change the direction of a moving body, also unelastic, no new force will be impressed on it: and if we should suppose this done constantly, for half a revolution, it will come up to the case here expressed. For, as was said in N^o 11. sect. 1. whatever changes the direction of a body in motion without adding a new force to it, takes off one of the compounding forces. And we cannot conceive in one single impulse any part of the compounding force to be in quite an opposite direction; especially since compounding forces begin to oppose each other, when the angle formed by the lines of their directions becomes obtuse.

former quantity of motion, by the constant change of direction; and as constant a reparation of it, by the new centripetal impulses, still generating a new projectile tendency.

VII Let us next consider the cohesion of matter, and we shall find that *rest* demonstrates more palpably, if possible, the immediate power of God impressed on it, than *motion* doth; and that upon all the parts, to such a minuteness as our thoughts can never pursue, and to an universality, that admits of no exception, but by a contradiction. All the ways that men have attempted to account for this mechanically, and without interesting the immediate power of God, have been no better than a supposing the thing to be accounted for. Thus when it is said, that this is the effect of some superincumbent or surrounding fluid, that binds, and keeps together the parts of matter; this cannot be true of all the parts of matter. The question recurs, what is the cause of the cohesion of the parts of this fluid? Any part of it must be considered as consisting of yet other parts: if the cohesion of these parts is not accounted for, but supposed; and then these supposed to be the cause of the cohesion of other parts
of

of matter, nothing at all is accounted for (*q*). Besides, a surrounding fluid could not cause the

(*q*) And this is no less true in other respects than that of cohesion. To account for the gravity of bodies, by a vibrating elastic medium, is to account for one power of matter by another unaccounted for power of it, whence of consequence neither is accounted for. When we are searching for a motive power in nature, and these vibrations are supposed, it amounts to little more than supposing motion in matter to account for motion in matter. Or when this elasticity is made to consist in the mutual repulse of the particles of this medium; it is as if we should say, some parts of matter are impelled to each other, because other parts recede from each other. This says nothing to the origin of motive power. It is true, when the immediate material impulse that produces such or such an effect, can be fairly proved, it is so much advancement in philosophy; but it does not much towards the solution of this question, whether all is material impulse; or whether there is an immaterial Mover at the head of nature? If some great philosopher should tell one, who wanted assistance in the solution of this question, that he could assign the mechanical cause of such a power of matter, and the mechanical cause of that cause, and another of that, and so on for ten or a hundred steps; but for want of the next mechanical cause above the last, he could go no farther; his scholar would be just where he was. Can we not come to the knowledge of the first immechanical cause, but by the *knowledge* of still another mechanical

the parts of other matter to stick together, and make up a solid substance, but by pressure on them, gravitation towards them, or being attracted by them: but we have seen that these are the impulses of an immaterial Agent, and no powers inherent in matter. The hypothesis of *hamuli* or branchings, that keep together the parts of bodies, by being entangled and implicated into one another, is liable to equal difficulty; for still it remains to be explained what makes the parts of these hooks so firmly cohere.

VIII. But we may be satisfied from the reasoning above, that this cohesion is the effect of the constant action of the Author of matter upon it. For matter considered simply in itself, can only resist a change of its state of rest, in proportion to its quantity, and is incapable of any greater degree of re-

chanical one; Then the search is supposed endless. Where would we turn next, if we could give the mechanical cause of gravity?——To search the mechanical cause of that cause? At last, because our faculties cannot go higher, we must leave the whole in doubt.

It is easy here to mistake the end of our enquiries, and to think ourselves disappointed in finding what we first set out in search of; to wit, The first and immechanical cause.

distance,

sistance, without some external action to keep it in that state. 2 A will make a double resistance, and 3 A a triple resistance, to be moved with the same celerity, as once A. It is contradictory to imagine it can make more resistance. For, let us suppose as much force applied to it as would overcome this resistance to be moved with a certain degree of celerity; and if we suppose it yet to resist more, since there is not an equilibrium between the two forces, we suppose it to move of itself the contrary way, by this excess of resistance; that is, not to resist, but effect a change of its state. Now, since this is all that matter, as matter, can do, it follows that where-ever there were force enough applied, to overcome the resistance of any part of a body, as of a rod of iron, *v. g.* to be moved with a certain celerity, it ought to be detached from the rest of the body, and be moved with that celerity: and yet we see the parts of this rod will resist a vastly greater force, before they can be separated, than would move the whole with a considerable velocity. Therefore this must be the effect of an immaterial impulse, the force of which is equal to the difference between the resistance the parts of the body actually make against being separated, and
the

the resistance these parts would make by their *vis inertiae*, to be simply moved, if they were separated. And it is to be observed in this argument, that any finite force will move any assigned body with some velocity; for in the shock of unelastick bodies, the velocity of both after the congress, is to the velocity of the impinging body before, as the impinging body is to the sum of both bodies: wherefore as long as the impinging body bears any ratio to the quiescent one, the velocity after the impact will always be something. From this we may be helped to estimate, or conceive, how many thousand, nay millions of times, the resistance of matter is greater from this external impulse of cohesion, than from its own natural inactivity: and that not only in hard bodies, but in the elements or constituent parts of all bodies; as will appear as we go on.

IX. This impulse, or mutual attraction, for it is the same thing which we name it, since we must conceive it external to matter (*r*) is called by philosophers the attraction of cohesion,

(*r*) *s'Gravesande*, speaking of this very attraction of cohesion, defines it thus: *Per vocem attractionis intelligo vim*

cohesion, in distinction to the attraction of gravitation : and it is *the cause* that in different degrees of propinquity and contact, the parts of matter cleave together with such different degrees of force, as to constitute all the different degrees of solidity and compactness, of fluidity and brittleness, observable in bodies (s).

X. This attractive power must be conceiv-

vim quamcunque quâ duo corpora ad se invicem tendunt ; licet forte illud per impulsum fiat. Cap. 5. de cohæione partium. Def. 4.

(s) Mr. *Worcester*, in his account of the principles of natural philosophy, after he hath pretty largely treated of the attraction of cohesion, adds, p. 22. *Having proved the reality of this attraction, it is no difficult matter to shew farther, that such a power is sufficient to explain how the parts of bodies may stick together with as many different degrees of cohesion as have been observed in nature. Therefore by the first philosophical rule, this attraction ought to be esteemed the true cause of cohesion of parts ; and for that reason it is called the attraction of cohesion. Particles of matter whose weight is greater than their attraction, can produce only an incoherent mass like a heap of sand. Particles of matter whose attraction is but very little greater than their weight, shall constitute a fluid. Particles of matter whose attraction is very much greater than their weight, shall form a compact and solid body. If the attraction exceeds the weight in a moderate degree, they will compose a soft body.* ed

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ed to be between all the possible parts of bodies. Where-ever it doth not obtain, there a separation could be easily effected; and a force impressed on any part of a body (steel, v. g.) would carry that part along only. When the parts of a body are divided as much as can be, by any external force applied, it shews that the parts yet undivided cohere more strongly; otherwise the division would begin there first. It is the easy separation of the parts of a certain bulk only, that makes a body soft, fluid, friable. If there were not a stronger cohesion between the particles which compose these parts, we can hardly imagine what would be the consequence. Water is not compressible: this is not because of its density, or want of vacuities, (mercury is fourteen times denser) but because of the firmness of its constituent parts, or unyieldingness to change their figure. So strong is the cohesion of these little corpuscles! Abstracting from this, it might be crowded up into one fourteenth part of its present bulk, and not be denser than mercury; or one nineteenth part of it, and not be denser than gold. The less the particles of matter are, the less force it would require

to overcome their *vis inertiae*, if there were no other principle, or extraneous power that acted; *and the more easily the parts of these might be separated*: and yet the farther down the division goes, it shews but the greater firmness of these lesser parts, since they are last in yielding. This is contradictory to there being no force but the force of inactivity exerted in them. Whence this *remarkable property* of matter appears, *That the force of cohesion* (that is of an extraneous power to keep the parts of the smallest corpuscles in their relative state of rest among themselves, by N^o 8. of this section) *is greatest, where the force of inactivity to remain in that state is least*. Every man is intreated to consider this at leisure with himself, and to draw that consequence from it which it will bear. To me it appears an irrefragable instance of Almighty power. And yet, it is necessary it should be so; the consistency of natural bodies requires it. All the bodies we are concerned with in architecture, agriculture, &c. nay our own bodies not excepted, would be like sand, dust, or rather infinitely fluid things, if the parts of them yielded to that force, which would simply overcome

their inactivity. And after all the divisions that are performed in the constituent parts of bodies, that are wrought either by the operations of art, or the changes they undergo in nature, we are necessitated to conclude, that the last and least parts cohere most strongly; otherwise they would have yielded to that force that overcame the rest. Nor can we conceive how in any of the operations of nature or art, every the least particle of matter can be separated from every other part. Such last parts would be unextended. *Lucretius* was so much aware of the necessity of the strongest cohesion in the least parts of matter, that he says (*rightly I think*) if it were otherwise, a touch would dissolve all body; every force [*vis quæque*]: and therefore he makes his atoms infrangible by any power, (*t*) *in which last he is wrong*; for certainly the
power

(*t*) *Denique res omnes eadem vis, causâque volgò
Conficeret, nisi materies æterna teneret
Inter se nexas minùs aut magis endopeditè.
Tactus enim lethi satis esset causa profecto:
Quippe ubi nulla forent æterno corpore, eorum
Contextum, vis deberet dissolvere quæque.
At nunc inter se quia nexus principiorum
Dissimiles constant, æternâque materies est,*

Incolumni

power that binds them together can dissolve them; for he was not equally aware of the contradiction in supposing, *that a part of a thing could make an insuperable struggle not to change its state, when the whole thing can make but an indefinitely small resistance to change its state.*

XI. Now since there must be a cohesion between every possible part of matter (*u*); the very conception of solidity implying cohesion in it (*v*); and cohesion implying extraneous impulse (N^o 8). This is that consideration that spreads the incessant action of the God of nature through the whole system; *to a minuteness, as was said that our thoughts can*

Incolumi remanent res corpore, dum satis acris

Vis obeat pro texturâ cujusque reperta.

l. 1. ver. 239. see also from ver. 566 to ver. 636.

(*u*) Dr. s'Gravesande, (*loc. citat.*) *Cohæſionis lex peculiaris est, omnes particulas vi attractivâ gaudere*, N^o 31.

(*v*) *Idem. ibid. Hæc omnia* [hardness, softness, fluidity, to wit, in the three former definitions] *a cohæſione partium pendent; quò arctior est, eò magis ad perfectam duritiem corpus accedit. Durities verò particularum minimarum ab illarum soliditate non differt, & est proprietas essentialis corporis, quæ non magis explicanda est, quàm quare corpus sit extensum, & mens cogitet.*

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never pursue; and to an universality, that admits of no exception but by a contradiction. In the out-lying regions of the universe, at the center of the earth, no where *not*, the immediate action of God binds together the parts of matter, and constitutes solidity. Indeed it is amazing to think of it; one durst hardly venture to affirm it, if the force of reason did not support the assertion. But it agrees well to be the work of an infinitely powerful and perfect Being; and philosophy assures us it is his work (x); though we generally

(x) Mr. Worcester above mentioned, speaking of attraction and repulsion, says, *Nor is the cause of these active principles altogether occult and unknown; for though perhaps it may be difficult to determine how far some of these principles may depend on any of the rest, or whether all of them do not flow from some other more general principle, as yet undiscovered; yet this is most certain, that either these active principles themselves, or at least that more general One, from whence they result, is altogether immechanical and independent from matter, and can only proceed from the first Cause and author of all things.* p. 9 and 10. This is very plain and express, and advances the conclusion here established, as far as it is in N^o 18 of the last section.

Concerning this argument drawn from the cohesion of matter for an immaterial power exerted on it, it hath been observed, *That Mr. Bernouilli of late has been so*
far

nerally use that expreffion of courfe, without

far from allowing that the leaft particles of fluids or of solids, are perfectly hard, that he affirms the exiftence of fuch particles are impoffible. Some will think thefe things ought to be more agreed to amongst philofophers, before they can be held as fo ftrong proofs of natural theology, &c. But with fubmiffion, if the parts of any body cohere together by a ftronger force than what would ferve to move the whole body with a confiderable velocity : that is, if the refiftance from cohesion is many thoufand times greater than their fimple *vis inertiae* ; and if the *vis inertiae* is the only power that can be inherent in them ; all that I affert for an immaterial caufe of cohesion, follows, I humbly conceive, *demonftratively*. And this appearance is too plain to be denied : a man can throw a pebble, a piece of wood, the rod of iron I mentioned, a great way : but he can fcarce, by any effort, break the cohesion of their leaft parts. If there be fuch things as hard bodies, their parts muft be hard : for this is no more than to fay, that if there be fuch things as firmly cohering fystems of matter, the firm cohesion muft be *between all their poffible parts*. If it were only between the larger parts, but not between the parts of thefe parts, the divifion would begin there. If the cohesion were fupposed to be only between particles, of the ten thoufandth part of an inch diameter, but not the internal parts of thefe ; then we muft fuppose the whole ftrength of it to be in the furfaces of thefe particles, and that between the leaft parts of thefe. So that ftill we muft lodge the whole force of cohesion, and the firmnefs of the hardeft bodies *in fome leaft parts*, whofe refiftance therefore muft be millions of times great-

out considering what must be the necessary import of it.

XII. Having

er than what could arise from their simple inactivity. And from this again, that remarkable property of matter will follow, which I insist upon, *That its resistance to change its state of rest, from an extraneous impulse, is greatest, where the force of inactivity to remain in that state is the least.* And this I think still is such a firm principle of natural theology, that it shews the power of God to be immediately and incessantly exerted every where, where there is solid substance : since, as Dr. *s'Gravesande* says, the hardness of the least particles doth not differ from their solidity, and is an essential property of body. Perhaps there may be an equivocation in the expression (*perfectly hard*). By that cannot be meant such a degree of hardness as no force can overcome. The force that binds the particles of matter together may dissolve them ; unless we would say with *Lucretius*, that no force ever bound them together, which the reason just now mentioned shews to be false. But if by *perfectly hard* is understood such a degree of cohesion, as no power of man can overcome, (which I suppose is Dr. *s'Gravesande's* acceptance of the term) the parts of bodies are thus hard. If, in any assigned parcel we could separate all the parts from each other, what would the effect be? We could then destroy the solidity of matter. By what I say concerning the incomprehensibleness of water, the very parts of fluids must be allowed to have a great degree of unyieldingness, that is hardness. When fluids are congealed, it seems there is only a greater degree of cohesion effected between their little solid parts,

that

XII. Having endeavoured, in as few words

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that were loose before. Sir *Is. Newton* says, *All bodies seem to be composed of hard particles; for otherwise fluids would not congeal; as water, oils, vinegar, and spirit or oil of vitriol do by freezing; mercury by fumes of lead, &c.* Opt. p. 364. How can any man account for the hardness or cohesion of natural bodies, or even of congealed liquors, but by the hardness or cohesion of their least parts? If every least part were easily separable from every other part, all natural bodies would be infinitely fluid things, though the parts still remained in contact; and every touch would render them discontinuous, *Tactus enim lethi satis esset causa perfectio*. This makes me say, *The consistency of all bodies, our own not excepted, depends upon this constant impulse of cohesion from the first Cause.* If there were no degree at all of hardness in bodies, this infinite fluidity would obtain: and to say there are no bodies relatively hard, with respect to our strength, is to say there are no such bodies as *iron, brass, stone*; or none harder than the parts of our flesh: for if there be such, they will be relatively hard to us. Nay, if no second agent can separate every least part of matter from every other least part, so as to make it cease to be solid substance; we must say, that those least and inseparable parts are *perfectly hard*; since *perfect or absolute hardness* must be understood with respect to the greatest created power. Hard, or difficultly separable parts with respect to infinite power, is absurd. Thus let us *hunt* and *trace* hardness, either relative or absolute, through all the recesses of matter, we shall always find it lodged in the *last* and *least* parts.

as the thing would admit of, to set in a just
light

And here if we should consider a little what would happen, if we supposed this impulse of cohesion between the parts of particular bodies suspended; it would appear with fewer words than were used before N^o 25. of the last section concerning gravity, that the thus keeping fast bound the several particular substances, on which our life and support depend, no less manifests the goodness, the wisdom, and the wonderful power of God, than the cementing together the great parts of his works by gravitation, by which we are preserved in another respect. *On the one hand*, bodies wanted to be moved. Without motion the world would have been an infinite wilderness. A projectile force is given. This motion would have been in straight lines, unless a centripetal impulse had been every minute impressed. This is constantly supplied. Numberless other species of motions for the growth of animals, vegetables, were required. These are furnished; the various, proper impulses duly made. *But on the other hand*, the parts of the great bodies, and of particular substances, wanted to be variously, strongly bound up in their relative state of rest among themselves. They could have otherwise undergone *no motion, no force*. Resistance implies solidity, solidity cohesion, cohesion impulse: otherwise we might as well speak of the œconomy of a heap of sand, as of an animal body; of the revolution of a cloud of *Epicurus's* atoms, as of a planet. *This impulse of cohesion then, the ground-work of beauty, order, motion, action, is made variously, minutely, incessantly, universally; or in all times, places, different degrees, and according to different exigencies.* Doth not
rest

light the incessant influence of this Being on the material world in general; let us next
(still

rest as well as motion therefore demonstrate the Creator's amazing, adorable power, presence, goodness? May we not cry out,

Sic, Pater, in cunctos didis te, commodus usus!

Is this speculation unpleasant to the rational nature? or, not founded in reason?

As to what is said of *the agreement of philosophers*; have not some denied any such thing as motion in the universe? some made us mere machines; some denied the existence of all immaterial substance; and some again the possibility of the existence of matter itself. I verily believe they have left nothing undenied that can be a proof of natural theology. Must we wait till they agree, to determine whether we have any material or immaterial substance in us; or perhaps neither of them? Or is it better to let all things remain in sceptical suspense? If this be a reason for doing so now, it will never cease to be one. It is really a better method to follow truth wherever we find it, without regard to names; paying great men that respect which their noble, industrious discoveries justly challenge; yet without sticking close to some weaknesses perhaps, which are inseparable from human nature; or setting *one* great name against *another*.

Sir *Is. Newton's* thoughts on this subject of cohesion are both pious and philosophical. *All these things being considered, (says he) it seems probable to me, that God in the beginning formed matter in solid, massy, hard, impenetrable, moveable particles, of such sizes and figures, and with such other properties, and in such proportion to spaced*

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(still in consequence of the same principle established, N^o 14 and 15 of sect. 1) con-

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as most conduced to the end for which he formed them; and that these primitive particles being solids, are incomparably harder than any porous bodies compounded of them; even so very hard, as never to wear or break in pieces: no ordinary power being able to divide what God himself made one in the first creation. While the particles continue entire, they may compose bodies of one and the same nature and texture in all ages: but should they wear away, or break in pieces, the nature of things depending on them would be changed. Water and earth composed of old worn particles, and fragments of particles, would not be of the same nature and texture now, with water and earth composed of entire particles in the beginning, &c. Now even this way of expressing the origin of cohesion is consistent enough with what has been said above: for, saying that God created at first each of these primitive particles *one* and *solid*, so as to be infrangible by any second cause, doth not weaken the demonstrative evidence they afford us, that an immaterial Power incessantly acts in making them cohere, or preserving each of them *one* and *entire*. For still they are solid matter, consisting of parts whose cohesion wants to be accounted for, (here they are supposed liable to *wearing* and *breaking*) and it cannot be accounted for in any other manner. And as to their being each of them *one*, and *originally undivided*, lodges no virtue or power in themselves to remain so; since Almighty Power might have formed particles of any bulk (millions of times bigger than they) that should have been *originally one* and *undivided*; where the denotations of *unity* and *undividedness* could never have superseded

der our own bodies, first in their mechanical, and then in their spontaneous motions:

for

superfeded the efficacy and power that hindred their actual division, in undergoing any force, or making any resistance, that was greater than their simple *vis inertiae*. So infinite power might preserve a *stone*, a *mountain*, the whole *earth*, one and undivided, which would only shew the effect of this cohesive force the more. The subjoining, *But should they wear, or break in pieces, the nature of things depending on them would be changed*, seems the same as if it were said, *But should God suspend this immaterial impulse which makes their parts stick together, the nature of things depending upon their being preserved as they are, would be changed*. And indeed this is very certain; for, as from this account we may see the power of God constantly *working* (to use such a familiar word) *here, there*, at the very *centers* of bodies, and through their whole solid substance, throughout all parts of the wide extended universe; giving particular bodies their various impulses, according to their different specific natures: so we may easily see that should he suspend this impulse, the foundations of nature would be instantly loosed. Things would be no more what they are. *Death* and *horrible confusion* would immediately succeed, where now *life, beauty* and *order* are seen. How many ways doth philosophy shew us depending upon him! How quickly could he spread a face of desolation over the universe; obliterate, sink it quite!

Let me here observe from this Author, another argument for an immaterial Mover in the operations of nature, which hath a great affinity with this of the cohesion of matter. He hath from hundreds of instances, I believe,

for albeit in N° 5. of this section these last were only excepted, as not immediately produced

believe, for twenty or thirty pages together (see from p. 350. of his *Opticks*) shewn that in chymical experiments the effect is produced, and all the force exerted by the least particles of bodies. Now *that a greater degree of attraction, of repulsion, or a greater effect of any kind, should be exerted by a small atom, than by a much larger body, shews us that this power cannot be lodged in it, but is exhibited by another Agent, by means of it.* For if it were the only immediate cause, its power, resistance or force of any kind, could only be in proportion to its quantity. And this is directly against being a mechanical effect in another respect; for, as I have observed above, *a small atom can never afford so much scope for other matter to act upon it, as a larger one.* But with submissive respect, and only for the sake of truth, let it be allowed me to oppose the supposition, with which this long detail is introduced. *Have not (says he) the small particles of bodies certain powers, virtues, or forces, by which they act at a distance, not only upon the rays of light, for reflecting, refracting, and inflecting them, but also upon one another, for producing a great part of the phænomena of nature? For it is well known that bodies act one upon another by the attractions of gravitation, magnetism and electricity; and these instances shew the tenor and course of nature, and make it not improbable but that there may be more attractive powers than these, &c.* Nothing can act where it is not: nor therefore matter beyond its terminating surface. Vertue, power, force, cannot be without a subject; nor communicated from the terminating surface of one particle to that of another without a sub-

duced by the power of God, yet we shall find this exception so qualified that his immediate efficiency is as much concerned in these, and as necessary, as in any other motion whatsoever. In effect, we do little more but *will* the production of the motion; and in strict propriety of speech, he is not only the *first*, but the *sole Mover*. *Animal life consists in a circulation of fluids, where matter, originally impelled by some power, ab extra, acts on matter with a certain determined force or moment, which arises solely from a resistance to a change of its state, (N^o 19. sect. 1.) and whatever matter were void of that resistance would be of no use in the mechanism of an animal body.* For as, on that supposition, it would have been absurd to have enquired for a *Mover*, since matter making no resistance to motion, no power or force (that is, the power or force of no being) was necessary

ject. Spheres of activity are material impulse, immaterial power exerted, or nothing: If material impulse; the impelling matter acts, not any distant particle. He adds, *these attractions may be performed by impulse, or some other means unknown.* But if it is not by material impulse, where resisting matter (or matter moved *ab extra*) acts on resisting matter, it must be by immaterial power exerted: since material attraction, that is matter acting at a distance, is repugnant to reason. to

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to be bestowed on moving it; so it would have been equally absurd to enquire for the effect of such a motion. Had there been but the least particle of resisting matter in a system of such unresisting substance, in a vegetable or animal body, the motion of the whole must have been stopped on coming to contact with that atom. And as certain as it is, that some matter in our bodies is resisting matter, so certain is it, that any quantity of unresisting matter (not to repeat again the contradiction that there is in supposing such a thing possible) would have been to no purpose, or effect. In short, as was said before, I do not think there ever was stronger evidence for any thing, than that matter must resist: the contrary is not only impossible, but allowing it certain, it is of no imaginable use, either in the works of art or nature. For just as working in stone, wood, iron, or any other material, would have been impossible, since the axe would have *no force* to cut the tree, nor the iron to shape and work the stone; so in the mechanism of the animal body, a mountain of such matter would not have moved one resisting atom.

XIII. Before we go farther, we may from this observe the ignorance, or the disingenuity of sceptical people. For it is remarkable that that *very mechanism* in the human body, which they contend is the cause of spontaneous motion in it, or all that is called a soul in it, *shews to satisfaction, not only that it-self is not this cause, but that it is contradictory that matter, or any quality or power, matter can be endued with, can be such a cause, as long as the body is capable of this mechanism; that is, as long as the matter in it is such as resists a change of its state, which is the very foundation of mechanism (as shall be observed immediately); and that is again, as long as it is matter.* There can be no notion more unphilosophical, than to think that a machine can be made of such matter as doth not resist a change of its state; or if it doth, to think that of itself it should effect a change of it. The pretence hitherto hath been, that we do not know all the powers and qualities of matter: but those who would seek a refuge from conviction by this, may please to observe, that although we know not all the powers of matter, yet we know certainly that
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it cannot have *inconsistent* and *contradictory* powers; and that, since the exciting motion in itself depends on this, we are as certain that it is not self-moving, as if we knew every thing belonging to it. Nor yet must we forget what was observed from Dr. *Clarke* above, that matter is only capable of one negative power, *viz. That every part of it will always and necessarily remain in the state of rest or motion, wherein it at present is.*

XIV. This will help us to determine what is properly to be understood by mechanical motion, by a machine and mechanism, according to the conclusion N° 26. of the last section; which is necessary to be done, in order to shew how the divine power produces mechanical motion in our bodies. *By mechanical motion can only be meant motion excited in matter, by other matter in motion, by means of the necessary resistance it makes to be brought to rest.* Nothing else can be meant by it without a contradiction; for a particle of matter, that necessarily resists a change of its state of motion, cannot produce a change in another particle, that as necessarily resists a change of its state of rest; unless

unless it be by a tendency not to change its own state of motion; that is, by resistance to be brought to rest, or by *moment* in its motion. A particle of matter that can be endued with no power to change its own state, can yet be less endued with power to change the state of another particle; for it must act upon it, to overcome its resistance; that is, first change its own state, which is contradictory; and it could not act otherwise, than by coming to contact, that is, by motion, without being supposed to act where it is not, which is contradictory still; (see the Note (*p*) N^o 22. sect. 1.) What is said here of one particle, is applicable to any number of particles acting mechanically. Any number could only encounter, interfere, impel, as two would do. And then let it be remembered what hath been sufficiently shewn, N^o 11. sect. 1. and N^o 3. of this, that the action of matter upon matter, or of these particles among themselves, can never increase motion, but must necessarily impair it, if their directions are oblique to each other, or interfere ever so little; (see concerning the encounter of elastic particles the Note at N^o 3. of this section) and therefore that the

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whole quantity of motion can never be kept up, among any sort of particles, unless where all the directions conspire, and are never changed, which is never the case in mechanical motion. From this consideration, the following important consequence, in this kind of motion, is plain. *That a power is not only necessary to impress the motion at first; but that it must act incessantly, to keep it up to one constant pitch.* The force or energy of every single impulse of this cause *ab extra*, is extinguished in whole, or in part, by the action and re-action of the moving particles of the system; the last always consuming the first, as well as being equal to it: so that the motion would soon cease altogether, without the indefinient action of the original power. Our experience in machines contrived by the art of man confirms this. It would be absurd to think that *one single* impulse of the spring of a watch would keep it going for any time after. The weight must *constantly* act on the clock. The natural power of gravitation consists in *repeated successive impulses*.

XV. By a machine can only properly be meant *a system of matter so disposed, that the*
fixed

fixed or immoveable parts of it may direct the motion impressed (by the power) on the moveable parts, that it may be by them communicated, to the weight, or thing designed to be moved; and that by the apt and proper figures of both kinds of parts, and their right position with respect to each other. That it should do more than regulate and direct the moveable parts is still contradictory; for it is the same contradiction here, as before, that the fixed parts of it should excite motion in, or increase the motion of the moveable parts, impressed upon them by the power; and there is no other way conceivable how it should conduce towards moving the weight, but by the right application of the original force communicated by the *power*; that is, *by regulating the moveable parts*, as has been said. Some machines are so simple, that they are rather to be called *instruments*; and we do not conceive that these multiply or produce motion; but when they become perplexed and complicated, we think it not impossible; or rather we generally suppose it true. However this reason, which is universal, as being drawn from the nature of matter, shews it is our prejudice and inattention. It is true,

a *compend* is necessarily studied by us, and always effected in the most useful machines; but this is not by their *multiplying*, or *increasing* the action of the *power*, but by an *artificial application* of it, that as little of it may be lost as can be. We can apply but little power, and therefore must husband it well. Sometimes the *weight* is divided, that but a part of it may affect the *power*, as in some combinations of pulleys; and generally the celerity of it is lessened (of which more by and by); so that what we save in the *power*, we lose in the celerity of the *weight*. But here again, experience confirms this in all machines of human invention; for the force of the *power* must be somewhat greater, even abstracting from friction and cohesion, than the inactivity of the *weight*, in order to move it; which shews that motion is not multiplied (*y*). If the force of the spring of a watch were but just equal to the friction and inactivity of the parts to be moved by it, there would be an *equilibrium*, and the watch would stand still. That is,

(*y*) It is to be minded here, that force, or moment, is made up both of matter and celerity.

the

the mechanical disposition of the parts, no way conduces to *multiply* the action of the power but only to *apply* it. The following particular is to be taken notice of carefully in machines, *That the more complicated they are, and the oftner the direction is to be changed* (and in the case of a circulation of particles of matter it is constantly to be changed) *the impressed force must still become the weaker.* This follows from N^o 11. sect. 1. and what was said of the motion of the heavenly bodies, N^o 6. of this; for if a change of direction weakens the force, a constant change of direction constantly weakens it.

The sceptical account of mechanism is opposite to this here given in every respect. They suppose a particle may be found in motion, they know not how; but it is without any mover; that motion is not diminished, but may be multiplied by the action of particles among themselves; and that there are several inherent, eternal propensities in the particles, to be moved, or rather to move themselves, in certain circumstances. I mark this opposition, that we may bear it in mind. The prejudices of men are generally on the wrong side; but we may readily have re-

course to the general principle above, when doubts arise, viz. *That resisting matter cannot move itself, nor unresisting matter any thing else.* This will set us right; for the whole train of reasoning will follow of course.

XVI. From the last two paragraphs we may see that we torment ourselves in vain to find out the mechanical cause of the circulation of the blood, if by a mechanical cause we understand certain powers planted in matter performing this motion, *without the intervention or efficiency of any cause immaterial*; so that matter with these powers planted in it, of itself continues this motion once begun. This is to endeavour to find out a thing which is not to be found out, because it is not. We saw in N° 6. of this, the impossibility of one particle's being carried round in a simple circular motion, without the constant agency of an immaterial power; but if we apply this to the present case of a circulating fluid, where there is a *congeries* of particles to be carried round, and consider, besides their constant change of direction, the diminution of any impulse impressed, from the action of these particles
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among themselves, by their *mutual illisions, attrition, contrary and interfering directions*; and add to this *the irregularity and intricacies* of the *meanders* they move in, differing inconceivably from the simplicity of a circular motion; and lastly, take in the vastly *unequal capacities* of these *channels*, and their *endless divisions and branchings*, the impossibility which was shewn in the other case, is infinitely multiplied in this. We saw also just now (N^o 14. of this) the necessity of the indefinient action of the *power* upon the *weight*, in any simple machine; but here there is an equal necessity for the indefinient action of an infinity of powers (so to speak): it is not in any one particle, under the same constant circumstances, that the same quantity of motion is to be kept up, as in machines that we know; but in every part of this inconceivably complicated piece of mechanism, under an endless variety of circumstances, where the *power* is to be applied in still a different manner, so that we must conceive them as different powers, and where a difference of the quantity of motion in the same particle, is as necessary to the end proposed, and this difference still to be in number and propor-

tion, as motion at all is necessary (z). If this were to be performed by the agency of finite immaterial

(z) A short view of this various, intricate, busy scene we may have from *Borelli, part. 2. de mot. animal. prop. 30.* after having mentioned two other sorts of motion in the blood, he adds, *Tertius est ille, quo à corde per aortam & reliquas arterias ad omnes corporis partes transfertur diffunditurque intra carniū, viscerum & glandularum spongiosam substantiam; & hinc a subtilissimis venarum canaliculis exugitur, congregaturque in venas majores, non secus ac flumina ex fontibus et aquarum rivulis, & torrentibus in decursu receptis, augentur; quæ omnes venæ, in unum grandem truncum cavæ desinentes, tandem ad cordis dextrum ventriculum exonerentur, et hinc per pulmonarem arteriam moles universa sanguinis, in ipsis pulmonibus diffusa, iterum recolligitur à venâ pulmonariâ, reduciturque ad cordis sinistrum ventriculum, ut iterum intra aortam effundatur.* This is not so much one, as two circulations; the blood being twice thrown out of, and twice returning to the heart, before the full period is completed. It takes a long journey, it seems, to recruit all the parts of the body, and another shorter journey to make itself fit for that purpose. The heart is the *common office* and rendezvous, whence it sets out, and whither it returns. What pains (speaking in our manner) doth this work cost? Infinite power and wisdom, no doubt, might have made it more compendious; such a cause is fertile in resources, being the master of all possibilities: but art and means are designedly multiplied, that we might not take it for the effect of chance. And again, in some cases the method itself is different, that we

immaterial Beings, we cannot conceive but that great numbers of them should be constantly busied in maintaining the circulation in one individual animal, considering the variety of the work to be done, by different means, in all the different parts of the body, and all to be carried on at the same time. The *fin* of a fish, or the *toe* of a frog, or *but a part* of these, would afford too much employment for a creature that can have but one thing under consideration at once. What is it to carry it on then, in all animals (and

we might see it is not the effect of furd necessity. I *shall stop* (says Mr. Derham, b. 4. ch. 4. of his *Phyfico-Theology*) *at one prodigious work of nature, and manifest contrivance of the Almighty Creator---and that is the circulation of the blood in the fœtus in the womb, so different from the method thereof after it is born.* See also his note (12) on this place. And generally (nay without exception) in all the works of nature, we can trace the power, the art and design a great way, to convince us what kind of a Being the cause is: but we can never trace any of them to an end; the farther we go, the art, the means, the contrivance, is infinitely multiplied, till we lose sight of it in inexpressible subtilty, to teach us to admire, adore, where we cannot comprehend. What method could be more proper than this to educate rational beings, to train them up to eternity, to kindle the desire of intellectual pleasure in the soul!

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I may add vegetables too) and by a different method and artifice in every species! Let me here observe our unphilosophical prejudices. If one should say, all this is carried on *by nature* at once (meaning by *nature* we know not what, some *surd imaginary entity*), nobody would except against the account, but think it as good as could be given in philosophy; but if he should say, all was immediately performed by the God of nature, we straight fly out against it, as a thing absurd and impossible. *Nature* in our mouths, is, like *chance* or *fate*, a word that stands for our ignorance, or inattention. Is *sluggish matter*, or *surd necessity* likeliest to perform the *difficullest effects*? (see the Note (k) N^o 5. of this.) One would think, we should meet with the greatest opposition, if we offered to pervert philosophy, and teach that *not an intelligent and all powerful Being*, but a certain thing both void of power and knowledge, did what was most wonderful in the Universe; and yet the contrary happens. Again, no man would allow, that one single body could of itself return to where it set out, after a perplexed and various course, and run the same ten thousand times an end: and yet we
allow

allow that a *multitude* of such bodies may perform this effect! We see one single machine requires the constant application of an external power; yet we suppose a vastly complicated one, which proportionally diminishes the force impressed, may be a Power to itself! But to return; this circulation of the blood is but one, though a principal branch of the animal œconomy; for in the *brain, nerves, stomach, guts, glands*, in every part there is motion, and every particle receives its immediate impulse from the finger of almighty God, if this one point be but certain, That matter is such a substance as resists a change of its state. Shall we yet solicitously enquire *if there be a mighty Governor of the world; or how we may be certain that he hath power or knowledge; or goodness to regard the low estate of man? Or where those magnified effects of his power are? Or is it true that he works constantly near us, round us, within us?*

XVII. Nothing here said is meant as if we should not enquire into the nature and constitution of the animal body, and the methods by which motion is effected in it. It brings unspeakable pleasure to the mind
to

to understand as far as our faculties will reach, the laws and methods by which infinite wisdom works; it is useful to the relief of our bodies in many cases; and nothing conduces so much to give us right ideas of the power and wisdom of God, as the contemplation of his works, where these perfections appear. But it is meant, *that we ought not to ascribe the operations of his power and wisdom to any cause besides himself, as to certain vertues and activities in matter, which we know not how it got.* This tends to lessen our respect to him, or make us imagine he may be absent, while this vicegerent of his power performs all; till at length we incline to think these activities may be proper and essential to matter; which hath been a greater hinderance to our dependence on the Deity, and our regard for him, than any other notion that ever was entertained in the world. When we ascribe any effect in the animal œconomy to *attraction, elasticity, fermentation, tonic action, or peristaltic motion,* we either express the efficiency of the first Cause in terms of art, or assert what amounts to a contradiction. Our error in this case seems to be a fear of *oppressing and perplexing the*
Deity,

Deity, with the *multiplicity*, or *diversity* of things to be done; or that these things are *too mean* for him to be concerned in; but philosophy acquaints us better with the nature of an infinitely perfect Being. Or else we are afraid not to be artificial enough in our enquiries, or to make an *occult quality* of the Deity; though it be extremely inartificial not to think that we must find the origin of the action in him at last, proceed as far as we please (a).

XVIII. Thus

(a) I shall here obviate an objection that might be made to this account of the circulation, and generally all motions in the animal œconomy, as being immediately effected by the power of God. *It may be said, that then we must conceive him to do and undo, act and counter-act to himself*: as for instance, if gravity in the blood is his immediate impulse, and also that power (be it what it will) whereby it returns in the ascending veins, contrary to the tendency of gravitation, is his impulse likewise, he must be thought to act against himself. But if this scruple should arise in any one's mind, it is answered, 1. That this is no more an objection against *this account*, than against the *common one*, where some second causes or other, some certain powers planted in matter, are supposed to produce the effect; provided we allow that it is still by the disposition and contrivance of the same first Cause. To dispose a thing to be so by mediation, and to effect it so immediately, is the same as to the

XVIII. Thus much of the cause of motion
purely

consistency of the method. 2. That cannot be called an inconsistent method to produce an effect, where the effect is unerringly produced. The excess of the one impulse against the other, is precisely such as answers the end. We who have but little power must be frugal of it, to make it reach the effect: but the consequence doth not hold to a Being of infinite power. The necessity that all the parts of our bodies should gravitate to the earth, was shewn N^o 15. sect. 1. [Other particular reasons might be added, with respect to the erect posture of man's body; the state of the brain, stomach, guts.] *A general effect*, that cannot admit of being suspended, requires *a general and uninterrupted impulse*; and a *particular exigency* will require a *particular contrary impulse*. This is as it should be. 3. But chiefly, this very objection shews convincingly, what is principally here intended, (and in so far answers itself) *viz. that opposite tendencies must proceed from external action on matter, and can never be made consistent in the same individual substance.* This objection should have been made in respect of many other instances; or rather, these instances should have obliged us long since to own an immaterial Power immediately exerted on matter; for these contrary impulses are extremely plain in a drop of oil between two polished glass plates making a very small angle at their line of contact. The attraction of *gravity*, or that of *cohesion* (or by whatever name it may be called) may be made to prevail, or both may be made equipollent, as the plates are more or less inclined to the horizon.

purely mechanical in our bodies; spontaneous motion is not so easy, and will require more words.

And it is repugnant to say *it can have a tendency of itself to move two contrary ways at once*. In a thread of rosy liquor suspended, as honey, all the parts are *attracted to the earth* by gravity; and all the parts are *retracted from it* by cohesion: for if the drop at the end falls, the whole thread shrinks upward, and is contracted in length. Let any man say, whether every part of this *liquid wire* can have a power planted in it to *fall downward*, and an opposite power planted in it to *fly-upward*, at the same time? I shewed before an instance where the two impulses coincide (I think) *viz.* of marble lying in the stratum; which made me conclude that they proceed both from the same cause; and that if it was absurd to offer a mechanical solution of the *one*, it must be no less absurd to offer any of the *other*: but if we suppose the thread of honey at the center of the earth, we may imagine the drop at the end would fall no where, but the whole length would be contracted into a globular form, *where the opposite impulses again coincide*, and shew (as it appears to me) the *unity* of the cause, though producing *different effects in different* circumstances. In this instance the opposite impulses are easily observable; but they are no less real in any solid body whatsoever suspended, *a rope of flax*, v. g. or *a rod of iron*: every part tends to the earth, and every part tends to that next above it; else why do they cohere, and not fall? This contrariety of impulses (the symptom, I think, of their being all external impressions) is certain in all bodies most familiar to us. A rock, a house, a tree; nay our own bodies, and those

of

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words. The first thing observable in it is, *that it doth not exclude, but suppose mechanical motion.*

of all other animals ; why do they not settle into an horizontal surface, like a fluid ? It is because the attraction of cohesion hinders that of gravitation to take place. Without this there would be neither *mountain*, nor *height*, nor *descent* for rivers, nor *bank*, nor *shore*, nor *vegetable* nor *animal bodies*. The consistency of things therefore depends on this contrariety of impulse on the same individual particles of matter : *and a contrariety of impulse on the same individual particles of matter undeniably proceeds from a Cause external to matter.*

And here I can't help taking notice of some animadversions that have been made on this account of mechanism, contained in these five last paragraphs, and the necessity contended for, of the constant action of an external power in all mechanical motion. It hath been observed that *when I shew that animals require more than mechanism, I seem here still to require new laws ; and that yet some of my arguments are not good, when elasticity, fermentation, rarefaction from heat, &c. are allowed. That it is not right to diminish too far the mechanical part of the contrivance and conduct of the fabrick of the Universe ; that if I bring in too many laws and principles actuating and governing the motions in it, it has great disadvantages ; and that when a vast number of different laws, often clashing, appear in my scheme, it will revolt some against it. That it must be remembred that the imputing the motions of animals in a great measure to a fine machinery is so far from derogating from the power and wisdom of God, that from hence arises the best demonstration,*

motion. The *spontaneity* consists in setting the mechanism at work: we are free to ex-

cite

tion of it. That though the principles of gravity, elasticity, &c. were mechanical themselves, yet the forming and producing such machines from these principles, shews the highest art; and that we are not to lessen an argument, especially one so clear and obvious to the sense of all mankind, for the sake of another that requires fathoming the depths of philosophy, perhaps farther than any man has yet arrived before it can be admitted. Here I cannot help replying in general, that if any, without observing the reasons I give, or excepting against them, will refuse the consequences that follow from them, there is no guarding against such objections. I shew (N^o 14 and 15. sect. 1.) that if matter necessarily resist a change of its state of rest or motion, it cannot have any power or virtue planted in it, or made inherent in it, as in a subject, to change that state. To be utterly incapable of producing an effect *at all times*, and yet capable of producing the same effect *at some times*, the incapacity still subsisting, is undoubtedly a direct contradiction. And after that, N^o 26 and 27. I shew that matter, as matter, must necessarily resist all change of the state it is in; or that the incapacity of effecting a change in itself, is inseparable from it as a solid substance. Not to mention what hath also been shewn, that if we should deny this resistance of matter; by so doing we allow a contrary incapacity in it, for want of *resistance, force, or moment*, to act on other matter. (See N^o 22. and the note (p). These particulars being considered, no principle in natural philosophy, I think, is more certain, or better esta-

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cite motion in the hand, or foot, or not to excite it ; but we are not free to excite it with,

blished. Now from this principle follow easily all the several consequences that I have drawn, or shall draw. How can it be said then *that I bring in new laws still ; or multiply principles ; or that a vast number of different laws appear often clashing in my scheme*, as it is called (though it is more justly *Kepler's* scheme, or even before him perhaps *Pythagoras's*?) Let it be shewn me, how the fair consequences of the same principle can differ, or appear clashing with each other? It is true, such a fundamental principle cannot take place, without drawing a great many particular consequences after it : but why should this shock any of my readers, as it hath been said before it will do? This is rather as it should be. If one should discover a new property of some geometrical figure, the consequences of it would never shock a mathematician. This is neither *Kepler's* fault, who first discovered this universal property of matter, (nor perhaps *Pythagoras's* before him) nor *Dr. Clarke's*, who first insisted on these consequences of it : nay let me venture to say, the prejudices of men should rather give way to it, if it be true ; and the commonly received opinions, so far as they are built on these prejudices, should be corrected.

If indeed *elasticity, fermentation, rarefaction from heat, &c.* are allowed in the common sense of them, as powers, to wit, lodged in matter, none of my arguments are good. But they cannot be allowed in that sense, while the property of inactivity, or the *vis inertiae* remains, *which hath been shewn essential to it as matter*. Having first premised, that spontaneous motion itself doth not exclude, but sup-
pose

with, or without the help of mechanism ;
if it is begun spontaneously, it is yet executed

OR
pose mechanical motion, as the basis and ground-work of it; let me observe that even Sir *Is. Newton* seems inclined to apply the elastic medium, which he supposes the cause of gravity, to solve this appearance of animal motion: which shews that he did not think the motive force was lodged in any matter that belonged to the body, or was exerted by it. His words are, *Is not animal motion performed by the vibrations of this medium, excited in the brain by the power of the will, and propagated from thence through the solid, pellucid, and uniform capillamenta of the nerves into the muscles, for contracting and dilating them?* (Opt. p. 328.) Thus far then we have his authority for rejecting the powers of matter in this case, as they are commonly understood; and really in all cases to which he applies the agency of this elastic fluid. He doth not lodge a motive power in the *fine machinery* of the body, but calls in a *foreign Mover*, in subordination at least to the power of the will: but what is to be done in mechanical motions which are independent on the will? How the particles of this fluid come by their activity or motion, he no where insinuates. Upon which account, I think, the question concerning *the origin of motive power* (the weightiest certainly in natural philosophy) is left still undetermined. Indeed if we consider that we have the same arguments against the activity of the matter of this fluid, as we have against the activity of any matter; it appears we should reject the active powers of matter universally: for, allowing the existence of such matter, it can itself be but a thing moved, just as

14.8 *The consequences of the*

or performed mechanically. The body is a machine, and that extremely complicated;
or

a billiard ball is a thing moved, though it moves another ball.

As to what is said, *that it is not right to diminish too far the mechanical part of the contrivance and conduct of the fabrick of the Universe*: I must observe that the mechanical part, so far as regards the nice structure and contrivance of an animal or vegetable body, or the disposition of the material universe in general, is no way diminished in this account: all the infinitely nice adjustment of one thing or part to another, still remains as it was: all the wise ordering of *proper means* to attain every *end*, is as conspicuous after what is advanced here is allowed as it would be otherwise. Let me ask: Is not the contrivance of the several parts of a watch, in order to shew the hour by the turning of the index, still as artificial and ingenious, though one asserts that the elasticity of the spring is no power planted in dead matter, but a constant impulse *ab extra*; as it would be otherwise? There is certainly no difference, nor any thing to make any alteration; and the cases are just alike. But we would have the motive power itself planted in dead matter; that is, *dead matter to be living matter*, (for such I think it is to be self-movement) to answer our notion of mechanical contrivance. Let us look into any book of anatomy, or natural philosophy, where the skill and knowledge of mechanical contrivance is explained, and we shall not find that the particular instances alledged are intended to shew whence the origin of motion is; or *that a fine machinery may be a power to itself*: but only to shew
the

or every part of it is full of various machinery, previous to our will, and by the appointment of

the wisdom and skill that is manifested in fitting the several parts to comply with such and such motions, their advantageous position, number, structure, strength, with all those other particulars that adapt them to their proper ends. Thus it is observed that the structure of the back-bone is the very best that could have been contrived; if it had been one continued bone, we could not have bended our bodies; if there had been but two or three bones with articulations for motion, the spinal marrow would have been bruised at these angles or joints. Again, it is observed in the joints, that some are *furrowed* and *ridged*, where the motion is designed to be *straight forward* or *backward* only; some are like a *ball* and *socket*, that the motion may be *quaquaversum*; both which artifices human art hath copied. Now in these and all other such instances, doth any thing said here diminish the mechanical part of the contrivance? They have all the same marks of wisdom and design in them whencesoever the motive impulse proceeds. But that it should proceed from the dead parts of matter, or be lodged in them, this I deny. And as it appears in reason the truest account that the motive impulse should proceed from the *first Mover*; so it hath these consequent advantages, that it is the *simplest* and *plainest* of all other, makes more for the *beauty of the Universe*, the *advancement of natural religion*, the *universality of Providence*, and the *shewing the ubiquitary presence of the Deity*, than any other could. Would philosophy be the richer, if it could discover one mechanical cause above another, for

of the author of it ; so that, though it depends upon the will to produce motion, or
not,

a great way, and there stop, without carrying us farther? Let me be forgiven, if I suspect, that these are only the mistaken views we generally propose to ourselves. And if it was designed to lead us to a first Mover at all, can it be so plain and simple to suppose him moving one thing, that moves another thing, and so on, that moves the things we are acquainted with? It is to be observed, that from the action of matter upon matter, the quantity of motion is still decaying in the Universe ; and then the more mechanical causes it is communicated through, the first impressed force must be the more weakened, unless we would employ Omnipotence to impress the motion at a vast distance, and then to keep it up in every step of the gradation downward. In this very respect of animal mechanism, Sir *Is. Newton* is very express that there must be some *active* and *recruiting principles* to keep the heart and blood of animals in perpetual motion, and to repair the loss of it in all other things. His words are, *Seeing therefore the variety of motion which we find in the world is always decreasing, there is a necessity of conserving and recruiting it by active principles, such as are the cause of gravity, by which planets and comets keep their motions in their orbs ; and the cause of fermentation, by which the heart and blood of animals are kept in perpetual motion and heat ; the inward parts of the earth are constantly warmed, and in some places grow very hot ; bodies burn and shine, mountains take fire, the caverns of the earth are blown up, and the sun continues violently hot and bright, and warms all things by his light. For we meet*

not, in any part of it; yet if any part of it is moved as being the part of a machine, it must

with very little motion in the world besides what is owing to these active principles. And if it were not for these principles, the bodies of the earth, planets, comets, sun, and all things in them would grow cold and freeze, and become inactive masses; and all putrefaction, generation, vegetation, and life would cease, and the planets and comets would not remain in their orbs. (Opt. p. 375.)

Here there is a full enumeration of all the particulars that are insisted upon throughout this whole section, and the mechanism of all parts of the world, small or great, is very plainly supposed insufficient to keep them a going, or afford motive power, without *active principles*, proceed they whence they will. And as to his way of explaining this in the next page, where he says, *It seems to me farther, that those particles have not only a vis inertiae, accompanied with such passive laws of motion as naturally result from that force, but also that they are moved by certain active principles, such as is that of gravity, and that which causes fermentation and the cohesion of bodies.* As to this, I say, if it is meant that these inert particles are endued with such active principles, so as to become the *subjects* of such *inherent activities*, I am forced directly to deny it. They must be *divested* of their *inertia*, before they can be *endued* with inactivity: and if their *inertia* is *inseparable* from them, activity will be utterly *incompetent* to them. An *inert*, active particle of matter is too open a contradiction to allow of dispute. The *inertness* signifies an *inability* to change its state of rest or motion: and the *activity* signifies an *ability* to change

must be mechanically. The case is the same as when we would raise a weight by a pulley
or

that state. But though Sir *Is. Newton* says, that these particles have not only a *vis inertiae*; yet he doth not say, that *they move themselves, but that they are moved by certain active principles*: and when it is said that a thing is moved, in opposition to saying it moves itself, it must necessarily be understood that it is moved by another thing not itself. Now go as far as we please, to other and other particles of matter, as long as they are allowed to have a *vis inertiae*, these can never be those active principles: which shews all at once whence the power and activity must proceed. With submission, I think it is somewhat improper to speak of the *mechanical cause of active principles*, (see what is said p. 377, about leaving the cause of these principles, to be discovered) or the mechanical cause of those principles that conserve and recruit motion in the universe. And if the mechanical cause of them is there meant, we cannot be ignorant whence all power and activity proceed, as I said above.

Upon the whole then, to shew the origin of motive power in the Universe, to repair the waste of constantly decaying motion, and preserve life, heat and vegetation, is really the *dignus vindice nodus*, that calls for the intervention of the *first Cause*; since to account for the natural powers of matter from other matter, is not to the purpose, here at least.

As to what is said, *that the imputing the motions of animals in a great measure to a fine machinery, is so far from derogating from the power and wisdom of God, that from hence arises the best demonstration of it*: I answer,
the

or lever, or work a pump; it depends upon us to raise the weight, or not, by that means; *but not to raise it without that means.* There

the resolving motion into machinery hath been the atheistical and sceptical refuge ever since *Democritus's* and *Epicturus's* days, who allowed of no immaterial substance to be the cause of it: and it is the chief thing they will ever have recourse to, against the arguments for the power and wisdom of God. The fine machinery and contrivance of the parts of the bodies of animals, in order to perform the motions proper to their species, and way of life, is certainly one of the best arguments of the power and wisdom of God: but *that the imputing the motions themselves to this can be any argument for these*, I cannot agree. The direct impossibility of the thing itself is shewn above N^o 13. which ought to be remembered here.

As to the next point, there are demonstrative reasons against the principles of gravity, elasticity, &c. being mechanical themselves, and it would be ill shewing the skill of the Deity from such topics. When it is said *that the imputing the motions of animals in a great measure to a fine machinery, is an argument so clear and obvious to the sense of all mankind*; it is certainly mistaken, I think, for the wise structure and excellent disposition of the parts, to comply with all motions for the animal's preservation and life; which is certainly an obvious and clear argument, but is no way lessened in this account of the origin of the motions themselves. And the trouble of *fathoming the depths of philosophy* does not lie on my side, but on theirs who *impute animal motion to fine machinery.*

only

only arises this difference, from the simplicity of mechanism of human invention, and the complication of machinery in the body, that to move a part of any other machine, we must generally work the whole; whereas we can move a part of the body without moving or working all the other parts of it. *This was wisely and kindly so instituted by God, to answer the variety of our necessities, and prevent our universal and constant fatigue.* What is here asserted, is plain from this, that tho' motion is excited in the body by the empire of the will (*b*); yet more is required to excite it, than simply to will it (*c*): nor can the will, by vertue of its command, produce motion in any part or limb of the body, if

(*b*) *Quod multiplices, & plurimæ animalis motiones fiant electione, seu naturali appetitu quodam animalis; hoc quoque ut evidentissimum ab omnibus admittitur.* Borel. de mot. animal. part. I. c. I.

(*c*) *Manifestum quoque est cognitionem & appetitum per se tantum animalis partes non movere, & impellere, sed opus habere instrumentis necessariis, sine quibus motus effici nequeunt.* Ibid. And a little below; *At hæc doctrina* [*Aristotle's opinion, that the spirits were the instruments that move the bones*] *rejjicitur à Galeno & ab omnibus aliis, & ab ipsâ sensûs evidentiâ, qua constat musculos esse organa, & machinas, quibus facultas animæ motivæ articulos & partes animalis movet.*

the

the *machine* destined by nature to effectuate that motion, and to be the *instrument* in executing that command, be defective or disordered. Thus if the muscle, or muscles, designed to be the instruments in moving any joint, be cut transversely, or any other way disabled from their function, the will may command with all imaginable intenseness, yet will no motion of the joint ensue (*d*). And this inapitude of the mechanical instruments of motion, is the cause of the imperfection of spontaneous motion in *infants*, *decrepit old people*, and *wounded men*: for all on the part of the will may be equally disposed then, as at other times. And indeed the common sense of mankind doth not allow, or imagine it possible, that disease or age affects the will, or weakens the intensity of our desires. We are subject to no deprecations of time, no decays, in that respect; and were there no other thing required to the production of motion, but to will the pro-

(*d*) Jam diu hoc confirmatum est, quia sc̄tis per transversum musculis, cessat omnis retractio illius articuli, ad cujus confinium musculus alligatus fuerat, remanente interim illæsa āctione ejusdem articuli, quæ ab aliis musculis ibidem desinentibus pendet, Ibid.

duction

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duction of it, spontaneous motion would be always as the intensity of the desires, nor would the aptitude of the body be considered in producing the effect. This is still farther evident in *respiration*, which is a motion purely mechanical in us; for it is performed necessarily, and without an act of the will, as well when asleep as awake. Yet it is also partly subjected to the will; we can *accelerate*, *retard*, or *entirely stop* it for a little. And surely when it is thus accelerated, in consequence of an act of the will, it is no otherwise performed than when the will is not concerned in it; *that is mechanically*. Whence, as was asserted, *spontaneous motion doth not exclude, but suppose mechanical motion, and the spontaneity consists only in setting, or not setting the mechanism on work; or in an arbitrary command over the mechanism.*

XIX. Now *this thing that begins* motion where it was not, and *stops* it where it was; that effects a change from rest to motion, and from motion to rest; and that arbitrarily, can never be matter, which, as hath been shewn, necessarily resists all change of its state, either of rest or motion. This
would

would be a thing as self-destructive and repugnant as any that can be assigned; for the properties of the one of these are directly opposite to those of the other. Though spontaneous motion supposes the mechanical performance of it; yet since it hath been shewn, N^o 14, 15 and 16, that mechanical motion necessarily supposes an *extraneous immaterial power*; and since, in the present case, *even this mechanical power* is subject to the *spontaneous principle*, to set it at work, or stop it, and that in a very arbitrary manner; it can less be contended that *this principle* is matter, or any power possible to be planted in matter, than that the mechanical power itself is matter, or any power possible to be planted in matter (*e*). To assert this, should be as if we should say, that matter, which, as a solid, extended substance, would imply a

(*e*) This gives a particular sanction to the proof of the immateriality of the soul of man; and (if I might say so) puts it one remove farther, in our way of reasoning, from being material, than the first Cause himself. And indeed it is generally allowed (though I do not say justly) that spontaneous motion is far more impossible to be found in mere matter, than that of gravity, elasticity, and other impressions which have been shewn to be immediately derived from him.

contradiction

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contradiction to be endued with any power to change its present state, and therefore stands in need of an external power to effect all change of state in it, is yet in certain cases (of spontaneous motion, to wit) endued with a power over this *extraneous immaterial power*, to impel and set it a work to produce a change in itself. Or, that matter hath the power over *that* which hath the power over *it*; which is foolishly contradictory. In short, the case is just the same as when a man works any machine, a pump, for instance, to bring up the water; the gravity of the atmosphere, which, as hath been proved, is no power residing in matter, but a constant impulse *ab extra*, is necessary to make the machine produce its effect: and all that the man doth, is to put the machine in such a disposition, as to give this extraneous principle *scope* to act. Here *two distinct principles* are necessary; the *gravitation* of the incumbent atmosphere, and the *living force* of the man, applied to dispose the machine so as that this gravitation may have room to be exerted. Just so, the *spontaneous principle*, by its action, gives scope to a *foreign power* to be exerted in the substance
of

of the muscles (by rarefaction, or ebullition, perhaps) (*f*) and produce the effect: so that here also *two distinct immaterial principles* are necessary to produce the motion, without either of which it would not be produced; so far is it from being true that none is necessary. And it is as absurd to say, that the *spontaneous principle* is nothing but the subtil matter, which by its action it conveys into the substance of the muscle destined to be the instrument of the designed motion, as it would be to say, that the *living force* applied (by the man) to the *rod* or *winch* of the pump, is nothing different from that winch or handle. Therefore I conclude, as was said just now, *that this thing, which*

(*f*) See *Borelli de mot. animal. part. 2. c. 3. De causis probabilibus vitalis contractionis musculorum*; where he says, (*prop. 24.*) that the *succus nervæus* instilled into the muscle, by the act of the will, is one probable cause; and (*prop. 26.*) the blood contained in the substance of the muscle, the other, of the fermentation, intumescence, and contraction of the muscle: and that (*prop. 27.*) the method of this ebullition is not different from common fermentation: and in *prop. 25.* that the soul acquires *by habit* the art of transmitting the animal spirits rather into one nerve than another, according to the part that is to be moved.

thus

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thus arbitrarily effects a change of the present state of rest or motion in the matter of the body, cannot be the matter of the body itself, which necessarily struggles against all change of its present state. And since this change is effected by willing; for spontaneous and voluntary motion is the same thing; that thing which wills in us, is not matter. And since willing is but a power, or property, which cannot subsist by itself, without a subject, or something of which it is the power (cujus esse est inesse); therefore I conclude, that the thing which wills in us is an immaterial Being or Substance. Of the other properties contained in the description of the human soul, N° 1. sect. 1. we shall see presently.

XX. Thus it appears there are two distinct immaterial Beings which produce motion in the matter of the body: that Being which is the *principle* of spontaneous motion; and *that other Being* which is alone the *cause* or *power* in circulation, respiration, and other motions not spontaneous, and a *coefficient Cause* even in spontaneous motion; which *actuates* all matter, and from whose immediate impressions gravity, elasticity, cohesion, &c. result

result. These are two distinct Beings, I say; for that Being, which by the mandate of its will excites spontaneous motion in the body, hath no power over the circulation, either to promote or impede it; it often doth not know whether there is any such motion in the body; and when this motion is out of order, that Being can do nothing towards rectifying it again; and it hath but a very limited power over the respiration, which is performed without its concurrence, and even in opposition to it; for it cannot suspend this motion for any considerable time.

And a Being can never be the cause of such an effect as it doth not concur to produce, and which will be produced, in spite of all its endeavours to hinder it. And though in spontaneous motion it is *arbitrary*, and the first Cause; yet the concurrence of the *other Cause* is absolutely necessary. If the mechanic organs of motion (which do not depend on it for their right disposition) be out of order, as was said N^o 18. or if the immaterial Cause, which is the *power* in all mechanic motion, do not *co-operate*, no spontaneous motion will be produced; but an unperforming act of the *will* will pass without any effect.

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Therefore these two are distinct immaterial Beings, and not the same immaterial Being.

XXI. There are two things very remarkable here, and worth being taken notice of, as lying in our way, *viz.* that in this proof of the immateriality of the human soul, or of the necessity of *a particular immaterial Cause* in the production of spontaneous motion, the argument as strongly infers the causation, concurrence, or co-operation of the *first* and *universal Cause*, as of this secondary immaterial Being: And this is a right symptom, and perfectly as it should be, according to the nature of that *universal Cause*. But that which is astonishing in this appearance of spontaneous motion is, *That he should submit his infinite power to co-operate with the will of his creatures.* And as there is no avoiding this *conclusion* in right philosophy(*g*),
so

(*g*) What is here mentioned of the first Agent's submitting his infinite power to co-operate with the will of man, is no more than what appeared in N^o 19. in the parallel case there spoken of, of a man, working a pump. For whether gravitation, (that of the atmosphere which there produces the effect, when the man, by voluntary motion, disposes the machine so, that this power
hath

so we cannot but admire this instance of the divine condescension.

XXII. However this consideration seems to require that we should dwell a little longer on the concurrence of the first Cause with the spontaneous mover of the body; to see if it may not appear by another method of reasoning than that in N^o 18. Now if we say that no extraneous power concurs, and assists the spontaneous principle to excite motion in the body, we must say that the whole force exerted, is impressed by it immediately

hath scope to act) whether this gravitation, I say, is the immediate impulse of the first Agent, or the impulse of other matter, which must be first impelled by him, (unless we would exclude his agency altogether, and suppose an infinite series of necessary causes;) still, in this case, his infinite power, by the method and law he hath established in created nature, is subjected by him to cooperate with the action of his spontaneous creatures. And the same is to be said in other cases, where the natural powers of matter, as they are called, are exerted in consequence of any action of ours: as in shooting a bow, moving a spring, &c. So that this conclusion is to be made on any supposition, but that of direct Atheism; which I beg leave to observe shews the justness of that reasoning which infers it here. This is that which was referred to N^o 5. note (k).

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on the first moved part; or rather (since the motion is communicated through a series of inert organs, which by *re-action* consume much of the first *action*, N° 3 and 14.) that much greater force is first impressed, than is ultimately exerted on the thing to be moved. For it is moved immediately by *something* that doth not communicate all the motion it receives, and that by *another thing*, &c. until we come to the *thing first moved*. But this first moved part (*animal spirits*, or *sucus nerveus*, or give it what other name we please) though it is absolutely certain that it must be matter, since, by the terms, it is a thing moved (*h*) and, by supposition, moves other matter by material impression; must yet be very subtil matter, and in a very small quantity, otherwise its nature, properties,

(*h*) *Quia omnes muscoli, paucis exceptis, non agunt vitali motu, nisi quando volumus, & imperio voluntatis à cerebro, quæ est regia animæ sensitivæ; non transmittitur per alias vias, quam per nervos, ut omnes fatentur, & evidentissimæ experientiæ evincunt: cùmque præterea rejecta sit actio incorporeæ facultatis, & spirituum aëreorum; ergo necesse est ut aliqua substantia corporea, per nervos ad musculos transmittatur, vel commotio ab eâ communicetur, quæ possit validissimam inflationem ictu oculi efficere.* Borell. de mot. animal. Part. 2. Prop. 22.

and

and manner of operation had been better known before now (*i*). If then we consider the quantity of matter to be moved by the force impressed on this first part alone (no other force concurring by the supposition) which is often more than double the matter of the whole body, in cases where a foreign weight is also to be moved, and that this part which receives the whole impression is so minute and subtil; it follows that the quantity of matter in it bears scarce any proportion to that of the matter to be moved by it; and if we should suppose (which is the only thing to be supposed, to render the effect possible) *that their quantities of matter and velocities were reciprocally proportional* (that is, that it as much exceeded the matter to be moved in velocity, as it is less in quantity) to render their forces but barely equal; then it follows that the velocity of *this part* would be so inconceivably great, that it would per-

(*i*) *Fateor me non percipere mechanicam operationem, quæ motus spirituum in cerebro imperio voluntatis agitati, eos dirigant ad titillandos certos et determinatos musculos, ut, si velim manum extendere, spiritus dirigantur non ad nervos pedum, aut thoracis, sed ferantur ad eos qui ad manus pertingunt, ut eos titillent. At si balbutiendo aliquid loqui velimus, puto, &c. Ibid. Prop. 25.*

forate any part of the body, opposing its direction, like a ball out of a gun, and so leave the body quite, without performing the designed effect. *Borelli* calculates that when a man extends his arm, and upon the extremity of his four fingers supports as great a weight as he can in that posture, the force that is exerted in the muscles to support this weight, is more than seventy thousand times greater than the weight itself, whatever this is (*k*). But it is impossible that a force equal to this could be directly impressed on a part, that almost escapes observation, without having the effect just now mentioned. Whence it is evident, *That all the force is not impressed on the first moved parts (animal Spirits, v. g.); and that all that it doth is only to give scope to a far greater power to be exerted; and that this immaterial power is exerted in subordination to the will, or co-operates with it.*

XXIII. This Author, who was the first that discovered that the force exerted within the body so enormously exceeds the weight

(*k*) *Idem*, Part. 1. Prop. 45, 82 & 124.

to be moved without; or that nature employs an immense power to move a small weight, says thus of it; Part. 2. c. 3. *De gradu virtutis motivæ vitalis musculorum secundum Antiquos. Hæc communis sententia* [the opinion of Galen, Gassendus, and others, to wit, That nature moves great weights by small powers] *tantam verisimilitudinem et probabilitatem in se habere videtur, ut mirum non sit, à nemine, quod sciam, in dubium fuisse revocatum. Quis enim tam stultus erit, ut machinam unquam quærat, ut magnâ vi pusillum pondus moveat, scilicet machinam et artificium adhibeat, non ut compendium, sed ut dispendium virium patiatur? Non secus ac si quis pondus unius libræ, quod immediatè absque ullâ machinâ movere atque sublevare posset vi, & robore æquali uni libræ, neglecto compendio, quæreret vectes, trocleas, & alia organa, ut libram unam sublevaret viribus decies & centies majoribus. Et si hoc absurdum jure censetur, quâ fieri poterit ut natura sapientissima, quæ ubique compendia, simplicitatem, & facilitatem quærit, tantâ industriâ machinas in organis animalis elaboravit, non ut parvâ virtute magna pondera, sed è contra immenso propemodum robore parva pondera moveat? Hoc quidem licet*

videatur monstrum, & contra communem sententiam, non diffiteor me posse evidentissimè demonstrare, & petitâ priùs veniâ ostendere contrariæ sententiæ assertores allucinatos fuisse. Demonstrabo enim verè machinas in motionibus animalis adhiberi, et illas multiplices, & varias esse; attamen non parvâ virtute magna pondera sublevari, sed è contra magnâ virtute, & robore facultatis animalis parva pondera sustineri; ita ut multoties virtus motiva centies & millies superet pondus ossium et articulorum sublevatorum, & nunquam minor sit illis; & hoc erit præcipuum hujus primæ partis subjeetum & materia. Thus far this excellent person in his entrance upon this surprising affair. And whatever may have been objected against his calculation of the force of the heart, or other particulars (*l*); yet it is obvious that in the main, it is as he asserts
with

(*l*) Dr. James Keil, it is true, hath as good as demonstrated that M. Borelli is wrong in calculating the force of the muscle of the heart; and M. Varignon hath discovered another mistake of his. Yet it is but justice to set down what this last named Author says of him—*Au reste (says he) si l'on attaque une erreur ou M. Borelli est tombé, on n'en est pas moins persuadé du mérite extraordinaire de ce grand homme, dont les principaux ouvrages doivent être mis au nombre des livres les plus originaux qui aient paru*
dans

with respect to spontaneous motion; *viz.* that nature employs a vastly great force to move or suspend a small weight, and there is a necessity in the nature of things that it should be so. For the *Power* that moves the limbs in this motion is confined to *narrow bounds*: or hath but a *small room* to act in; and the *weight* to be moved (the limb or part, and it may be a foreign weight joined to it, as when we throw a stone with our hand, or support a weight with our extended arm) moves through a *much larger space*. Therefore the *power* must be as much *greater* than the *weight*, as its distance from the center of motion is *less*. The wisdom of God and his power shines out wonderfully in this. The animal body was to be but of a moderate size; the power was necessarily confined to act within it; and the weight was as necessarily to be moved without it, in all motions. Therefore a great profusion of power and force was requisite to move small weights. And since a contrary disposition of things (where the power, to wit, should have acted in a larger sphere,

dans siècle ci. Avertissement au P examen de l' opinion de M. Berelli sur les proprietes de poids suspendus par des cordes.

and

and the weight moved in leſſer room) was inconceivable; we ſee the power of God was not ſtraitened, but hath laid out an immenſity of force to produce the effect; which ſeems indeed an extravagant expence of power to us, whoſe weakneſs forces us to have recourſe to a quite contrary method. For we are obliged to give the *little power* we can employ a *large ſphere of action*, that the weight may be moved a *ſmall ſpace*. The wiſdom of God diſplays itſelf alſo wonderfully, in chuſing the proper kind of power (ſpeaking according to our conception) ſo as to require the leaſt ſphere of action poſſible: for an inſtantaneous fermentation is kindled up in the body of the muſcle, where a force is exerted like to that of gun-powder: *Quæ poſſit validiſſimam inflationem ictu oculi efficere*, ſays *Borelli (m)*. Let me be permitted to ſhew

(*m*) The following animadverſion hath been made with reſpect to what is ſaid here. “ As for the cauſe
 “ of the contraction of the muſcles in animal motion,
 “ that ſeems one of the moſt abſtruſe phænomena in nature,
 “ and moſt diſputed at preſent. An ingenious writer has reſuted the more common opinion, without
 “ giving any diſtinct account of his own. There is ſo
 “ much reaſon to be cautious in natural philoſophy,
 “ and

shew the difference between the method of the Deity and of us men in the exertion of

power,

“ and flow in giving into any hypothesis, and the experience of many ages has shewed this so necessary, that it is by modesty and great care in reasoning about the hidden causes of these manifest phænomena that one will be heard upon them.” But with much submission, though the formal manner of muscular motion is still disputed by philosophers, all that I assert here is nevertheless certain, *viz.* that a prodigious force is exerted within the body of the muscle; which follows from this known circumstance, that it is confined to act in a narrow sphere, while the weight is to be moved through a large compass; and that therefore this is a wonderful instance both of the wisdom of God in contriving and his power in exhibiting this phænomenon. We are ignorant of the formal manner how lightning hath such stupendous effects; yet the effects themselves are not to be contested. If we are certain of a particular circumstance in any *appearance* which is above any thing but infinite power to effect, such as in this case, for instance, the prodigious force exerted, and which it is necessary should be exerted, on account of the narrow space it is confined to as a mechanical power, while the weight to be moved lies at a great distance; and if we are certain that such a force is applied, which though it acts with speed and violence, yet acts mildly and innoxiously to the neighbouring parts, and without pain even to the most tender parts themselves, though actually concerned and employed in the production of the phænomenon; if we are certain of this, I say, we have all the reason in the world

to

power, by the following rude comparison. Let us suppose a *lever* twenty or thirty foot long

to admire that Power which is able to make good such an effect, and that too by a method so different from what our weakness would force us upon, though we are entirely ignorant of the formal manner how this is brought to pass. If we act *strongly* we act *destructively*: but here the power is exerted in another manner. It acts with *strength* and *vigour*, and yet with *safety*; the force applied is *guarded* and *restrained*, and therefore, though immense, it does no mischief. What if this is done by way of a string of bladders? This neither diminishes the power exerted, nor the contrivance. We saw before that a slender film of air supports a mighty weight, and that without contact. This but increases the wonder; for matter cannot resist above its *vis inertiae*, nor, being inert, multiply the force impressed upon it; and the superplus of force exhibited must come from another hand. In short, a weight cannot be suspended but by an equality of re-action either from the *inactivity* of matter, or from a *living power*.

If we knew the mechanical manner of muscular motion, could we cease to admire, or immediately assign a *new power* to matter to answer the appearance? This would be quite wrong. As I have said above, we can trace power and wisdom in any of the works of nature a great way, to shew us the perfections of the cause; but we cannot pursue the inexpressible subtilty of contrivance and machinery to an end, to teach us to admire beyond what we can formally conceive. And this is as rational in right philosophy (that is, where finite intelligent

long on one side of the *fulcrum*, or point supporting ; and scarce half a foot on the other :

telligent Beings are to be instructed by the works of an infinite Architect), and as absolutely necessary, if we would act rationally, as it is to ascribe what we formally conceive to art and power. Would we know all the art and power of an omnipotent *Creator* ; or allow no power and art beyond what we know ? Let any one answer this at his leisure. We are but in our first stage of existence ; a fund of instruction is undoubtedly reserved for us till hereafter. What else were philosophy worth, if not to train us up in the knowledge of this *Cause*, but to gratify an unmeaning curiosity, or be a mere pastime, or to make us despise others ? There cannot be proposed another consistent end of it. Would we pursue the knowledge of mechanical causes in nature to help us to admire the *skill* and *art* of *chance*, or the *wisdom* of *necessity* ? I wish men would think on this plain, short question.

But to return, any one will see that my design, or the particular argument here, doth not lead me to espouse any hypothesis ; but to shew in general that motive power cannot be lodged in matter ; nor therefore that the direction of the force, nor the contrivance and design can be imputed to it, or to any furd cause. The true mechanical solution of any phænomenon, whenever it is given, or by whomsoever it is discovered, will always confirm this. I have no occasion therefore to thrust myself into the controversies of philosophers that are out of my road, unless they oppose this conclusion ; in which case some better hand will certainly appear in such a cause.

other: *man* would apply his little power to the twenty-foot extremity to raise the weight

In speaking of these particulars of muscular motion, *viz.* the great force exerted, and the narrow sphere it acts in (which are very certain circumstances) I refer to *Borelli*, as the *most authentic writer*. Yet he calls the chapter where he speaks of the causes of the contraction of the muscles, *De causis probabilibus* only; and in another case, he says, *Fateor me non percipere mechanicham rationem*, &c. as was cited just now. Here is no hypothesis obstinately defended. He proposes what he thinks probable; every one will do the same. Sir *Is. Newton* hath proposed his *elastic Fluid* to answer the same appearance. I compare this force to that of gun-powder, not by way of hypothesis, but to help myself, and others like myself, to conceive the *suddenness* and *strength* of the effect. Thus far the comparison serves; but in respect of the *harmlessness* of the force it *haults*. To a like purpose I make use of another rude comparison of the lever immediately after, which indeed wants much indulgence. Why should our ignorance of what we know not, hinder us to make a right use of what we know? When we consider that in every successive intumescence of a muscle, there is a sudden explosion, as it were, where a certain matter is consumed (as, according to *Borelli*, I think the phenomenon of lassitude declares) and consider farther the *quickness*, the *indesinence* of this, as when one walks a whole day, or works at any hard labour; we shall hardly be able to help admiring the power, the goodness, and (if one durst so express it after our manner) the pains the infinite God of nature is at in animal motion.

through

through half a foot; but the *Author of man* applies a sufficient force to the half-foot extremity to move the weight through a sphere of twenty feet. This may help us in some measure to form a notion of the difference of the method, and of the effect produced.

XXIV. From this we may see the truth of what was said, N^o 9. sect. 1. *viz.* that matter is so powerfully resisting a thing, that man could overcome the resistance but of a mighty inconsiderable part of it, without the concurrence of a greater power than his own; for really all the motion that is to be properly ascribed to his power, is that impressed upon the first moved subtile matter, which occasions a superior power to be exerted in all the other parts of the body. And this again infers all that was asserted, N^o 12. of this. For as it appears by what was said, from N^o 26. sect. 1. to that N^o 12. that the *first Cause* is the *constant* and *sole Mover* in all the inanimate and unvegetating parts of matter; so it evidently follows from what hath been said since, that *he is no less powerfully present* in all the spontaneous motions of animals; which (except as to the will and spontaneity,

and a small force impressed on a very inconsiderable part of the matter of the body) are immediately effected by him. Let us take an example, to consider how many ways his power is exerted in producing the effect in an ordinary instance, without dissembling truth for fear of its consequences. *Truth can have no ill consequences; nor need we be afraid to follow wherever it leads.* When one discharges an arrow out of a bow, the spontaneous mover (the immaterial part, or soul) *wills and designs* the production of the action: and this entitles it *his action*, in all the moral consequences of it, whatever they are. This mover doth moreover something that sets the mechanism of the body at work; and thus far only it is an agent. The matter of his limbs, the natural powers being exerted in it by the *first mover*, in consequence of the *spontaneous mover's* willing, impresseth by its resistance and firm cohesion, (which is also *his impulse*) a force on the bow, whereby it is bended; and this is the immediate efficiency of the *first Mover*. This force is withdrawn, and the spring of the bow hath scope to be exerted, and to discharge the arrow. This is again the effect of the *first Mover*. As

soon as the arrow is out of the bow, the action of gravity constantly impels it, so that it moves in a certain determined path, or curve; and in it's descent, what by the action of gravity upon it, (which is the constant impulse of the *first Mover*) and what by the force communicated to it by the restitutive action of the bow, also impressed by *him*, it falls on an innocent man perhaps, and wounds, or kills him. How far the Atheist may mistake this as an objection to the goodness and justice of this Being, we may see hereafter. But in the mean time it is evident, that the particular mover in the human body hath but a small share in producing all this motion. And yet from thence a gradation begins to be perceptible (*n*).

XXV.

(*n*) If we observe, there is a *gradation* or *scale* of *ascent* of the principle of action among creatures, in proportion to their perfection. For from what is here said, it is plain the first Being is the sole principle of action in all *inanimate matter*. In *animal motion*, the animals themselves are admitted into a small participation of the production of the effect, as they have the direction of some motions, or the power of beginning them. *Brutes* and *men* are thus far spontaneous with regard to the motions of their bodies. But men have farther a power of di-

XXV. When I consider this whole reasoning, and withal reflect how opposite it is to the settled prejudices of men, I foresee it will be narrowly canvassed both by *friends* and *adversaries*; and am hopeful from reviewing it over and over, and considering the frivolousness of the objections that have been yet offered against it, that it will be found solid and just, or at least that no mistake will be found affecting the main conclusion; and I am the more encouraged to hope this, by considering that Dr. *Clarke* carries this speculation the same length. And I am also persuaded that any man who begins with recting arbitrarily their perceptive capacity to and throughout their past perceptions, which brutes have not, as shall be shewn; and which therefore is the *specific difference* betwixt rational and irrational beings: for this power is the foundation of the rational nature. Of these things afterwards. As to the power of moving matter, it is extremely probable that higher orders of beings have it in a great degree; and that, as Dr. *Clarke* insinuates, they may exert this power for particular designs of Providence. But still the universal influence upon matter, and that various impulse whereby all the particular parts of the Universe, and individual things, by a constant law and tenor, are preserved, must proceed from the first Cause.

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the *vis inertiae* of matter, and reasons fairly, must carry it the same length. Only let me observe, that if the Doctor had written in that diffuse manner I have done, and on this single topic separately, how many other arguments, nay how much better arguments (I say it without affectation) might have been reasonably expected from him ! And now having said thus much, let us stop a little to set the former arguments and our prejudices against each other. What may one seriously think of all that passes in nature? *I rise from my seat.* By whose power? *I proceed a step.* Who assists me? What various action is here excited by the simple act of my will, without my farther participation! *I move my hand, my finger; I pronounce a word.* Must I have recourse to the living powers of dead matter? *I feel my pulse; observe my respiration.* What action and power are exerted in these? Who exerts it? Are inert particles, finely set together, sufficient? Philosophy will not allow us to admit of such absurdities. What are we to admit of then? Can power and wisdom be the effect of nothing? Or of any thing but a powerful and wise Being? Doth vigilant matter perform all

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while I sleep? Is it unphilosophical credulity to believe a God? Philosophy should then explain things without him. Or is any one man singular in having such various *action* incessantly performed for him? Is nothing done for any *other* man, any other animal, any vegetable?—*But is it possible to find so much power as to perform all this?*—Is not that power possible which is actually exerted? We would not scruple to allow *nature* (a furd entity in our minds, a philosophical name) all this power.—*But can all this power belong to one Being?*—Infinite power may belong to one being. It cannot belong to two. There would necessarily be a division. Infinite power divided ceases to be infinite power. Infinite power must belong to one Being.—*But can one Being be every where present, to exert such various action about me, every other man, every other thing?* He would not else have infinite power. Excluding it from any place, or thing, limits it.—*But can such a Being subject himself to such constant, universal, little work? Doth the Deity really actuate the particles of matter in my vile body? Is it not more philosophical to find out some less worthy*

thy

thy cause to answer this universal effect? Yes perhaps; dead matter, universal chance, universal necessity, something that acts wisely and powerfully universally, without either wisdom or power. These are less worthy causes, but they are contradictory ones. Perhaps infinity of power may be puzzled, straitned, perplexed; perhaps it cannot reach to infinitely little things; things below a certain greatness? But is this universal effect so unworthy? Whose is the matter of the vilest insect? By whose laws, whose wisdom was it formed?—But really (say you) this is very terrible! Is the power of God constantly so near me? Doth he know so intimately every thing I do? Why? If he be infinite, where can we lurk? What other thing, what other being besides this infinite one could preserve us, and perform the various actions on which our life depends? Is it so terrible to be preserved a thousand different ways? We are rational; if we act as such, what have we to fear? He is infinitely rational, and cannot but love the works of reason.—In all these questions, the men who scorn to be determined by any thing but the force of reason, will determine, and chuse their own side,

XXVI. And now, can we be at a loss for a demonstration *that there is a God*; that he is near *every one* of us, at all times; when the greatest philosopher cannot account for the motion of his own finger, without having recourse to his power immediately put forth in the performance of it: when we cannot turn our eyes, our thoughts, to any one thing in nature, which doth not shew his power immediately exerted: when otherwise, the parts of our own bodies would be scattered like dust before the wind, by every force that could only overcome their simple *vis inertiae*, that is, (N^o 8. of this) *by every force*? And if we consider that the other infinite perfections in the Deity of justice, wisdom, and goodness, cannot be separated from his presence, knowledge, and power, without denying his existence entirely, and at the same time all evidence and truth, as shall be shewn; if we consider this, I say, it all together affords us such a view of the Divine Providence, as must be very comfortable to creatures otherwise so *weak* and *helpless* as we are; extremely pleasant and satisfying to the *rational* nature, that must be pleased to find
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an *infinite reason* at the head of things, instead of the Atheist's ill-supported, tottering world; and wonderfully astonishing to our weak and finite comprehensions. This is *that scene of Providence* deducible from matter of fact in the Universe, confirmed by one uninterrupted experiment (his power indefinitely exerted on every thing to which we can turn our thoughts or eyes) and discovered (as was said in N^o 7. sect. 1.) from this single truth, *that matter as a solid, extended substance, necessarily resists all change of its present state of rest or motion.* And now let the Atheist be asked in his turn, what reason *Lucretius* had for exclaiming against this notion that a being could be *omnibus inque locis, inque omni tempore præsto* (o); and for setting up in his room, according to his own unphilosophical

(o) *Nam (proh sancta Deum tranquillâ pectora pace
 Quæ placidum degunt ævum, vitâque serenam!)
 Quis regere immensi summam; quis habere profundi
 Endo manu validas potis est moderanter habenas?
 Quis pariter cælos omneis convertere? & omneis
 Ignibus æthereis terras suffire feraceis?
 Omnibus inque locis esse omni tempore præsto?
 Nubibus ut tenebras faciat: cælique serena
 Concutiat sonitu? tum fulmina mittat; & ædeis
 Sæpe suas disturbet; & in desertâ recedens*
 N 4 *Sæviat,*

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sophical prejudices, an *infinity of nothingness* beyond all being, and a huge monstrous

*Sæviat, exercens telum, quod sæpe nocenteis
Præterit, exanimátque indignos inque merenteis?*

Lib. 2. ver. 1092.

I beg these lines may be remarked. *How grandly doth a contradiction sound, set off in a poetical dress!* A reader cannot withstand his own prejudices, when he finds them recommended to him in such lofty numbers. He calls the Gods to witness against themselves, that they have no power; that no being can have power to wield the heavenly bodies, and drive them round, and perform the other effects that are done in the Universe. But may we not stop him in his sublimity, to ask, If no being hath power to do this, how comes it to be done? He will answer, this power is so great that it can belong to no being: therefore it is better to find out something else that may perform these effects; atoms, chance and necessity may perform all. But the first of these causes, *atoms*, is inert, or hath only a negative power; *chance* is a bare sound; and *necessity* is a cause which has nothing to recommend it but that the word consists of two or three or more syllables. It is strange that such stuff should pass for philosophy, and have amused the world so long! The names of these causes are now somewhat antiquated, and their power is recruited with a *new appellation*. We call them *nature*, and *the natural powers of matter*. If we would add the epithet, *inactive*; and say honestly, *The natural powers of inactive matter*, we should spoil the whole mystery of all kinds of Atheism at once.

necessity,

necessity, an empty unsupported cause of things, itself nothing, and belonging to nothing? From this also may appear how little is in that boasted argument of his and his followers, *that in an infinite lapse of time, all possible combinations of things must have happened, and so all possible productions of plants and animals must have been effected* (p).

1. Matter resists motion, and wants an extraneous, immaterial Being to move it. 2. If put in motion, it resists a change of the direction. 3. If the direction is changed, the quantity of motion is diminished, from the collision of the atoms among themselves. *Hence not one single new combination could have happened through all eternity*, allowing matter could have existed without a cause. 4. But making a large concession, that the just combination of atoms, requisite to form the

(p) *Nam certè neque consilio primordia rerum
Ordine se quæque, atque sagaci mente locârunt;
Nec quos quæque darent motus pèpigrè profectò:
Sed quia multimodis, multis, mutata per omne
Ex infinito vexantur per cita plagis,
Omne genus motûs, & cœtûs experiundo,
Tandem deveniunt in taleis deposituras,
Qualibus hæc rebus consistit summa creata.*

Lib. 1. ver. 1020.

body

body of an animal, some way or other might have happened; *the two most essential things* are still wanting; a *constant extraneous impulse* to be the *power* in circulation, respiration, and all other motions purely mechanical; and farther, another *immaterial principle*, to be the *loco-motive power* in spontaneous or voluntary motion. Besides, learned and good men, taking the argument at all disadvantages, have shewn that the *improbability* of such a combination of atoms is to the *probability*, as an infinite number to unit, or nothing. Only it ought to be considered in this kind of argument in reasoning about the degrees of probability, whether that doth not allow the effect in some degree possible, which yet is absolutely impossible. The argument cannot come to a calculation, without supposing the possibility, and reality too, of *four successive contradictions*.

XXVII. Let us now return to the consideration of the other properties of the human soul, and see whether it is possible that matter may be capable of them. The *second* species of activity mentioned in N^o 1. sect. 1. is *spontaneity of thought*, where the
power

power is exercised over our own perceptions ; and it implies the power of willing, as being really exercised by volition. If we are active in turning our perceptive capacity to any object, it must be by willing ; and if we do not will this, we are not active but passive in it. And generally, *no kind of activity is conceivable without volition* : a thing that is incapable of willing the action that is performed by it, must be supposed *to be physically impelled to it*, but not to have the principle of action in itself. “ If it acts blindly, and without “ being capable to will the action ; *why should “ it ever cease from action, or ever begin the “ action ?* It should either act *always*, or “ *never*.” This shews that it must have an external determining principle. We cannot ascribe a change from *action* to *non-action*, or *è contra*, but to some cause. *This principle* should have been more regarded by men who speak of active matter, and active powers in matter. If matter effects a change of state in itself blindly, and without a principle ; it must either *always* effect it, which I have shewn to be contradictory, (see the note at N^o 14. sect. 1.) or *never* effect it, which is no less a contradiction. *That is*, when a change

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change of state is effected in matter, it must be by an external principle determining it, or by the internal determination of volition: or, that it cannot be without one of these, or some third way. But it is as good as already proved, that matter cannot be endued with the power of volition. It was shewn before, N^o 19. of this, that spontaneous motion is effected by volition; *Spontaneous motion is the same as voluntary motion.* Now nothing needs be more evident than that, since to effect motion is absolutely above the power of matter, *the power that effects motion is absolutely above matter.* Or take it thus, matter as a solid substance necessarily resists all change of state; *therefore it is incapable of being endued with that power that could change its state:* If it were capable of being endued with this power, we should be obliged to deny its resistance; and therefore its moment, (N^o 22. sect. 1.) as also its solid extension (N^o 26.) In short, it is as incapable of being the subject in which this power and resistance can at once reside, as of being the subject in which resistance and its contrary can at once reside. Matter therefore is incapable of all kind of activity, or of being
endued

endued with any power, except that one negative power of remaining in the state in which it at present is, as Dr. *Clarke* asserts.

XXVIII. Now since this is so, though we should grant that matter might have a degree of perceptivity in it, yet notwithstanding this perceptivity, it must be as inactive in all senses, as it could be without perception. It could as little move itself then, or change its present state of rest or motion, as impercipient matter could; and it could as little turn its perceptivity to any object, or change the state of its perception, as it could turn itself to another position, or change the state of its rest or motion; that is, as if it wanted that capacity altogether: since either of these would suppose activity, or *a power of willing* in it: that is, it would be as sluggish, dead matter, in all senses, as any supposition could make it. But surely to ascribe such a property to it, as leaves it as inactive, either to *motion*, or *thought*, as when that property is denied of it, is folly. The only remaining resource for the Atheist is, to suppose, *That possibly some kind of activity may be among the powers of matter*, which

was just now shewn impossible. Any other being could never know whether it had such a degree of perceptivity, or not ; since it could do nothing more to discover it, than matter that had no perception : that is, *it is impossible the person who asserted this, could ever have any ground for his assertion.* And lastly, from such perceptivity thinking could never be produced ; for thinking implies active perception, or *activity joined with perceptivity.* For which cause it is that, tho' irrational animals are percipient, and also active in willing motion ; yet wanting the other species of activity, the spontaneous direction of their perceptive capacity towards and thro' their past perceptions, they cannot be called *thinking creatures.*

XXIX. But really matter hath no such perceptivity at all : for of what could it be percipient ? Not of its own action in *moving*, nor of its internal operations in *thinking* ; all action in it being impossible. Thus it would have no object to be perceived. If it should be said that it might be percipient of the action of other matter upon it ; not to mention that action is impossible in all matter

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ter alike; then such perception ought to be as mechanical and necessary as the action of matter upon matter is. And because *action* and *re-action* are equal, the perception ought to be excited equally in both the *matter acting*, and the *matter acted upon*. The perception ought to be strong according to the force of the collision: nothing but no force at all could produce no perception at all; but in all other cases the perception should be something. But these consequences are absurd, and false; and therefore the supposition from which they follow must be so too. In a mortified or gangren'd limb we have no perception, though it be touched or even cut off. It must be organically united to the *percipient being* in us, that perception may be excited by the action of other matter upon it. We had perception of the action of other matter upon that part before, but have it not now, when the organism is vitiated; which shews that some other thing is necessary besides the action of matter upon matter. When we touch the hair of our head, action and re-action being equal, the perception ought to be as strong there as in the other part: so if the finger strikes against the eye, or any sore or wound-

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ed part, the quick sense of pain should be felt in both parts equally. And since matter cannot be percipient, it cannot have ideas; ideas are perceived, and are consequently nothing but perceptions; and therefore it cannot have sensation, feeling, or life, because all these imply perception (*q*).

XXX. From this we may see what little reason Mr. *Locke* had to be so peremptory in his dispute with the bishop of *Worcester* about the possibility of matter's thinking; where, to prove it possible, he says, "For example, " God creates an extended solid substance, " without superadding any thing else to it, " and so we may consider it at rest: to some " parts of it he superadds motion, but it has " still the essence of matter. Other parts of " it he frames into plants, with all the excellencies of vegetation, life, and beauty, " which is to be found in a rose or a peach-tree, above the essence of matter in gene-

(*q*) This whole argument that matter cannot think, nor move itself, concludes in much fewer words, from considering the endless divisibility of it; which shall be insisted on, when we come to consider the pleasures and pains of the body, as distinct from those of the mind.

" ral

“ ral, but it is still but matter. To other
“ parts he adds sense and spontaneous mo-
“ tion, and those other properties that are
“ to be found in an elephant. Hitherto it
“ is not doubted but the power of God may
“ go. But if one venture to go one step
“ farther, and say God may give to matter
“ thought, reason, and volition, as well as
“ sense and spontaneous motion, there are
“ men ready to limit the power of the om-
“ nipotent Creator, and tell us he cannot
“ do it; because it destroys the essence, or
“ changes the essential properties of matter,
“ &c. (r)” A man may warrantably say,
that to effect a contradiction is not the ob-
ject of *any power*; nothing less limits *Omnipotence*: and such it is to effect that a sub-
stance, which as solidly extended, must resist

(r) Book 4. chap. 3. sect. 6. in the Note at these words, *We have the ideas of matter and thinking, but possibly shall never be able to know, whether any mere material being thinks, or not; it being impossible for us, by the contemplation of our own ideas, without revelation, to discover whether Omnipotency has not given to some systems of matter fitly disposed, a power to perceive and think, &c.* This is founded upon what Mr. Locke elsewhere endeavours to maintain, That our ideas are only *arbitrary combinations*, without connexion to any thing in nature.

all change of state, should, while remaining solidly extended, become of *dull, dead earth*, life, sense, and spontaneous motion (*s*); for that is to say, it becomes *living, sensible*, and *spontaneously moving earth*, while it remains dull and dead earth. So that, notwithstanding this complaint, as if the bishop had been unreasonable in opposing his conclusion, it appears the reason was good, and that he could not go one step farther, without destroying the essence of matter, *viz. solid extension*; and that he had gone a *step* or *two* too far before, in making the *spontaneous mover* in an *elephant*, and the *external mover* in the mechanism, both of plants and animals, *properties* of dull and dead earth. A little farther on he is more express: “ But if
 “ you mean (says he) that certain parcels of
 “ matter, ordered by his divine power, as
 “ seems fit to him, may be made capable of
 “ receiving from his Omnipotency the faculty of thinking; that indeed I say, and that
 “ being granted,” &c. (*t*). This author hath well observed, that they are different conside-

(*s*) In the page immediately after, *viz.* 145. vol. 2. edit. printed 1715.

(*t*) Page 150.

rations that prove the soul *immortal* and *immaterial*; but yet when he says, “ That it is
“ as evident to him, that brutes reason in
“ some instances, as that they have sense (*u*);”
and here takes it for granted, “ That it is
“ but mere matter with superadded proper-
“ ties, that thus reasons,” (though he offers
no proof of either of these assertions;) and
since all men suppose the matter of the
brute body finally dissipated at death, this
gives an *ignorant sceptic* courage to affirm
that it may be so with the human soul.
Why should we maintain a point *gratis*, and
barely for maintaining’s sake; as here Mr.
Locke allows the soul is immaterial, but con-
tends it might have been material; why, I
say, should we maintain a point *gratis*, that
hath a bad tendency? Were all other argu-
ments wanting, this itself would be one a-
gainst it. No truth by being known could
have a bad effect on the minds and lives of
men: and contrarily, what will always have
a bad effect on the minds and lives of men,
will have strong probability at least against
its being truth, supposing no argument could
be brought for or against it.

(*u*) Book 2. chap. 11. sect. 11.

XXXI. There is another particular here, which I cannot help remarking, tho' it is almost superfluous; which is this, because *we cannot conceive how matter acts on spirit, or spirit on matter*, we fall to making hypotheses and conjectures, which we might as well let alone; for these suppositions only give us ease through a mistake. Thus *some* make all created spirits not wholly free from matter, that they may be acted upon by matter. *Others* rarify matter to a vast degree, and make spirit of that; and *others* have given our souls material vehicles, to give and take impressions to and from matter. But if this matter with which spirit is *mixed*, (as it is expressed) be not resisting matter, it can never make any impression on the matter of the body, which is resisting matter, and requires force or *moment* in the matter that makes an impression upon it. So that it were as good to give spirit no material vehicle, as a vehicle of *unresisting* matter; since it must, notwithstanding this vehicle, make impression upon body immediately by itself: and we had as good give it no vehicle at all, as a vehicle of *resisting* matter; since spirit
could

could as easily affect the matter of the body immediately, as the resisting matter of its own vehicle. Besides, since we cannot conceive how any thing not matter should act on matter, or how matter should act on any thing not matter; we are as much at a loss to conceive how the spirit acts on its vehicle, or it upon the spirit, as without that hypothesis. Thus much is certain, that since a solid extended substance, as such, is inactive and dead, and yet is moved, it must be moved by a substance not solidly extended, whether we conceive the manner of it or not. The *first Being*, who is surely a pure Spirit, moves matter. This power of moving some matter, though in an infinitely small degree, it hath pleased him to impart to the human soul: For however it may be joined, or mixed with matter, it is certain the motion excited in matter must arise from the substance purely spiritual; and that even the matter imagined to be *blended* or *mixed* with it, must be moved and actuated by what is not matter; otherwise there would be no need of any immaterial substance. And on the other hand, if an immaterial substance is acted upon by matter, it can be no greater relief to the imagination, to suppose it act-

ed upon by the matter joined to it, or mixed with it, by its vehicle, for instance, than by the other matter of the body, to which it is vitally united. These I think are but *fruitless struggles of the imagination* to grasp things that do not belong to it; to conceive the action of spirit on matter, or matter on spirit, after the manner of the action of matter upon matter.

XXXII. This truth, *that matter cannot be moved without an immaterial Being*, may help to take away the old controversy, *Whether the soul is propagated by traduction*, kindled up as it were by the souls of the parents, as one flame excites another, without losing any thing of itself; if it is true that there is a pre-existent animalcule in the semen, which moves spontaneously. And indeed there is little reason to doubt this, more than to doubt the circulation of the blood; both are discovered by sense the same way assisted; if we believe from the information of our eyes, that there are *several very rapid torrents* continually flowing in the *slender film* between the toes of a frog, we must also believe that there are numerous animalcula in the male-feed. Besides that we must otherwise return
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to the justly exploded absurdity of equivocal generation: for it is as conceivable (in the stated laws of generation) that an animal should spring from a hair of the head, as that the heart should grow first, and the other parts of the animal accresce to it afterwards in their proper places. *All animal growth or vegetation is performed by a circulation of fluids, and not by a mere addition of parts, or agglutination to the outside of things already complete.* Therefore if we would say that a certain part of the animal body is formed before all the rest, we must allow a circulation even in that part, supposing it an organized complete system by itself; or else we make it a mere excrescence of the body of the parent animal, and formed in a manner below the vegetables, in which tho' probably there is not a perfect circulation of the sap, yet there is something equivalent thereto, [See Mr. Hales's *Vegetable Statics*] by which every part of a plant is expanded, and, if I may so say, receives nutriment and growth internally. The origin, or rudiments, of a living creature therefore must be *one co-eval system*, containing a *circulation* of juices and nourishment. And generally all seeds of

things seem to be the immediate and particular work of Omnipotence. If they were natural productions, it is scarce conceivable that they should regularly keep their kinds (*v*). These little systems then moving thus spontaneously require as much an immaterial Mover, as afterward when grown larger, and unfolded into all perceptible members of an animal.

(*v*) It is true, after we have seen that the influence of God is so universal on all the parts of matter, we cannot be afraid that there should be any mistake or confusion of the species of things in the world; yet, I think, we are forced to conceive this to be, by an immediate particular act of Providence, in forming their original feeds, and that they are not left to be produced by vegetation. The law of vegetation seems to suppose a pre-existent subject or seed, besides matter in general, which seed itself is not produced by vegetation. But if we are forced to conceive a *double act* of Providence intervening here, as it were; how can it be accounted for without any Providence at all? Observe how *Lucretius* represents the difficulty justly great; and then consider his principles for the solution of it.

genus omne ferarum
Incerto partu, culta ac deserta teneret.
Nec fructus iidem arboribus consistere solerent,
Sed mutarentur : ferre omnes omnia possent.
Quippe, ubi non essent genitalia corpora quouque
Quis posset mater rebus consistere certa?

Lib. 1. ver. 164.

But

But when the body, folded up in this small volume, and its *immaterial Mover*, were first united, is not a point so easily to be determined. Possibly the *seminal atom*, though existing from the first creation of matter the same individual system, is not yet informed by its *immaterial inhabitant*, till it comes through various changes, to be at last deposited in the proper receptacle of the parent animal. At least it doth not appear that one who should say this, could be shewn to affirm any thing absurd or impious. It should not give us a low notion of the human soul, that it is shut up in such a diminutive system, or so long hindered from the improvement and exercise of the powers it is endued with: *great* and *small* are but comparative in this case, and not absolute. If the body, of what bulk soever, were without *eyes*, *ears*, and *the sense of feeling*, it would be as much shut up, and the exercise of its faculties as much impeded as in its original state. But the chief argument against this absurd opinion of the generation of souls (and that equivocal, if I may so say) is the consideration that the soul is immaterial: for it is as absurd that immaterial substance should generate imma-
terial

terial substance, as that matter should generate matter. Such generation would not differ from creation. And the opinion of the transduction of souls must either suppose new immaterial substance generated, or that these souls are material, or some power of matter. All which are absurd.

XXXIII. And this again prevents an unskilful objection of sceptical men, That a good and just Being could not infuse a soul in adulterous or incestuous copulations(x). For, if what was just now inferred be true, the soul is previously united to the *seminal system*. But were the thing as they imagine it is, it

(x) This objection seems borrowed from *Lucretius's* ridicule on the subject of souls entering into bodies, in the following lines, Lib. 3. ver. 777.

*Denique connubia ad veneris, partúsque ferarum
Esse animas præstò, deridiculum esse videtur ;
Et spectare immortaleis mortalia membra
Innumero numero ; certarèque præproperanter
Inter se quæ prima, potissimèque insinuetur :
Si non fortè ita sunt animarum fœdera pacta,
Ut quæ prima volans advenerit, insinuetur
Prima ; neque inter se contendant viribus hilum.*

It is certain, by what goes before, that every animal hath a *living immaterial substance* notwithstanding this sneer ; and that the *union* is the particular effect of infinite power. would

would be no objection to a fair and rational *Enquirer* : for the whole rests on this supposition, *that an infinitely good and just Being must hinder all injustice and wickedness*. But this would be to take away freedom and spontaneity of thought from thinking beings; and amounts in effect to as much as that he should not have made a free, or even a thinking *Being* (y) at all: since all the *obliquity* of a moral action, or the deviation from *the rule of action* consists in the *thought* and *will*. This is a bold way of objecting, which a man, who considers what he says, will be aware of. Freedom is a perfection! and any of the objectors, no doubt, takes himself for

(y) Without *freedom* there cannot be a *thinking being*, but only a bare percipient being: *for* thinking implies *the turning the perceptive capacity from one perception to another, by an act of the will*; otherwise a percipient Being would have but *one solitary* perception always in view. And if the Being doth not this by an act of the will, but is *impelled* by an external principle, how can it be said to *think*, being *acted*, and not *active*, in every thing beyond bare perceptivity? What is it to *will*? Is it not to *act*? If it be to *act*, it is to have *the internal principle of action*: and if it hath the internal principle of action, it must be *free*, and *needs not* be further acted or impelled in thinking. An *active* being, a *thinking* being, and a *free* being then, are synonymous terms.

a nobler,

a nobler, perfecter creature, than an *oyster*, or a *muscle*, which, though in some measure percipient, are yet percipient but of one constant, necessary sensation. *How unreasonable are we!* We would have the liberty of gratifying unreasonable passions, and pursuing false pleasures; and yet pretend to quarrel with God for allowing us that liberty. *Would we be free?* This question I shall suppose answered. No one would chuse to be such a creature as an *oyster*, or a parcel of inanimate matter. *Would we be necessitated to do good only?*—Let it be observed; we are under all the *moral necessity*, that is, have all the moral motives that the nature of things can admit of: a greater necessity of this kind than we are under is an absolute impossibility. That *would suppose that virtue might be more reasonable; or that we might have more reason for acting rationally, than we have.*—And contrarily, we have none of this necessity at all for doing evil: that too is as absolutely impossible; unless we call that a necessity which is of our own procuring, by precontracting vicious habits. This is as advantageous and wide a difference as we could conceive—To be physically impelled to good, or repelled from evil,

evil, is again inconsistent with freedom: to be *not agents*, but *mere puppets*, played with *wires* and *springs*, incapable of virtue itself. — Thus, unless we would have the *natures* of things *violated*, that is, *an impossibility wrought* to please us, our condition with respect to *freedom* and *necessity*, is absolutely the best and most advantageous we could have been placed in.

XXXIV. As to God Almighty's supporting the mechanism of our bodies, while an evil action is committed by us, and acting upon matter then with the same *constant impulse* of gravity, attraction, cohesion, &c. as at other times; let us consider that the *bare materiality* of the action, that is, *in so far as it is performed by the motion of matter*, is in itself neither morally good nor evil; for the same material action, which at one time is *evil*, is *good* at another, according to the difference of the circumstances: that is, the *good* or *evil* doth not lie in it, but in something else; namely, the *will* and *design*, as has been said. If we were creatures that had no communication with matter at all, or if the motion of that substance were unconcerned

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ed in our actions; yet if we had the *same*, or equally *bad thoughts*, then, as now, there would not be less moral evil, nor we less guilty. And by changing the supposition a little; if we had still the same thoughts that we have, but were impeded in the execution of all our evil designs, by Almighty God, we should still be equally guilty in his sight. He who is hinder'd in the execution of a murder, but had all the propensity, and ill design, that he could have had, to make it take effect, is as guilty on supposition his design does not take effect, as if it did. As to our communicating *physical evil*, or *pain*, to others by the success of our wicked actions, God is powerful and wise to turn that to the final pleasure or advantage of the sufferers; to bring *order* out of *confusion*, and to prevent the last effects of our malice. We cannot *perplex* affairs, beyond the skill of infinite wisdom and goodness to *unravel*, to speak after our manner; and there is a curb upon us from an invisible hand, in the midst of our career. GOD RULES: after which it is want of philosophy to doubt or murmur; or, it is the *the ignorance of laying down premises, and then refusing the consequences.*

XXXV. As to the instance above, N^o 24. *of the man's shooting the bow*; by far the greatest part of the motion or material action, is immediately produced by the first Mover, equally when the arrow *kills* an innocent person, as when it *prevents* an innocent person from being killed, by the death of a cruel, relentless *Aggressor*. And even in our way of conception, he produceth the material part of the effect justly and unblameably; for in either event he acts by the same *constant* and *equal law* of action; and it is the same thing as to the materiality of the effect produced, as if he had planted powers in matter to produce it, without his own immediate intervention, if that could have been done: for in all other respects it is equal, whether we say *they are planted in it, by the Creator, to co-operate with the spontaneous mover of the body, after a constant, stated manner; or are immediately impressed upon it, but after the same constant, stated manner still* (z). Besides, we are unjust in objecting
thus,

(z) The Reader will be pleased with the following remark made here, by a learned and ingenious person, as
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thus, upon this consideration, that whereas it contains an observation both new, I think, and solid. *Our Writers who argue from the beauty of nature, the motions and changes in the world being governed by certain stated laws, ought to shew the use of such laws, and of that constancy which in some particular cases is noxious. And this I take to be the use of it, that free agents could have no foresight or judgment without this constancy. There would be without this no choice or pursuit, because there would be no course of things.* Indeed, if we should suppose a contrary method to obtain, and pursue the consequences of that, in the view which this excellent remark opens to us; what fear and irresolution, what disappointment, confusion, and final disorder might we not apprehend in all human affairs! How much are we indebted to *Providence* for *appointing and keeping up* a constant natural course of things, at the same time perhaps that we are inwardly murmuring, that he doth not *change* that *course* in our particular behalf! If the course of nature, and the stated laws of things, were to be suspended, or altered, in behalf of every particular, and according to our short-sighted views of things; what *contrarities, absurdities, impossibilities*, must the Deity perform to please us all! We should have *heat, cold; plenty, scarcity, &c.* all at once; and the frame of nature must yield to execute our revenge. Now whatever inconvenience would happen, in complying with our unreasonable demands, to all besides ourselves, the same would happen to *all*, if the settled course of nature were suddenly interrupted, or had no regularity in it, even though no body desired it should be thus. *So impossible is it to mend God's constitution of things!*

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we ascribe all the merit of a laudable action to the *spontaneous agent* alone, we find fault with the *concurring agent*; if an action unjustly designed hath its effect. In this we do not consider that the *very design* and *intention* of an evil action is itself the *evil thing*, before any effect at all is produced. But farther, if the arrow by an unsteadiness of hand, or a mistake of persons, should wound, or kill an innocent man; or if the innocent is overtaken by some inevitable calamity, where no moral agent is concerned; we are to affirm *that this could not come to pass but for the best and wisest ends*. For it is an infallible certainty, *that there exists a Being infinitely good and just*; and therefore that any creature should be *ultimately unhappy*, by the immediate agency of this Being, or in a world where the power and knowledge of this Being presides, or *worse* than another creature *not more innocent*, or than another creature *yet more guilty*, is the greatest impossibility. If we are peremptory in this case, and determine that *either there is not a God*, or that *he is not a just inspector of human affairs*, and for this reason, because otherwise such an innocent person would not have been indiscriminately

involved in a shipwreck, or any common calamity with profligate and wicked men ; what becomes of our conclusion, if it is only suggested, that *such a person, if innocent, is made sooner happy, or if not innocent, is punished more lightly, that is, is made less miserable, than otherwise he would have been?* In short, there is no determining here on the side of Atheism, without supposing the point in dispute, viz. That there is no after state. But this only by the by, from the instance of shooting the bow, and the particular of uniting souls to bodies. We shall have occasion afterwards to consider the train of objections which the Atheist musters up.

XXXVI. It will, no doubt, be objected, *That this proof of the immateriality of the soul, shews at the same time the immateriality of the souls of brutes, and of every living thing, as well as of the rational soul; so that this either proves nothing, or more than should be proved.* In answer to which it is freely owned, that the necessity of an immaterial substance, in brutes as well as men, is equally certain from what is said here. If we should endeavour to dissemble it; or if it

were a thing that wanted to be dissembled, the Atheist would change sides, and easily prove it upon us. Probably *Cartes's* opinion *that there was nothing but matter and motion in brutes*, hath been one reason among others, why so many of late have thought it not impossible but that it might be so in men. There is indeed nothing more common to be heard than a confident assertion *that it is impossible to prove the soul to be immaterial*. And the proving that it is immaterial in *brutes*, must, *à fortiori*, infer that it is so in *men*. If the argument had only been urged against the *Cartesian* opinion, those who have extended that conclusion also to the human soul, must of course have relinquished their cause; so that more than enough is not proved. (*If truth is at all to be received, all the consequences of it are to be received; they are likewise truth*). The immateriality of the human soul doth not fall, though the souls of brutes are at the same time immaterial; nor doth the rational soul's being *such* depend upon the brute soul's being *not such*.

XXXVII. But farther, though both are immaterial, it doth not follow that both are

therefore equal, or of the same kind of immaterial *Beings*; which the objection tacitly supposes: or that there are the same reasons why the souls of brutes should subsist after they are separated from their material systems, as that the human soul should. The one's being *rational*, and the other *irrational*, is certainly a *specific difference*, which argues a *difference of design* in the *Author* of these two kinds of immaterial *Beings*; unless we would say that a Being infinitely wise made specifically different *Beings*, and not for different purposes. The same reasons do not conclude a soul immortal, which conclude it immaterial; and, though the immateriality of it is not against its immortality, but rather a strong symptom of it; yet without better reasons, the conclusion would be precarious, and ill supported. We are to conclude nothing certain about the immortality of the souls of brutes, because we have not evident reasons to support such a conclusion; and we are to conclude something certain about the immortality of the human soul, because we have evident reasons to justify our so doing. This is surely a right method of philosophising. If some great Philosopher should

should arise, who could shew that the souls of brutes are preserved after death, for some wise purpose of the great *Author of nature*; how could this prejudice the cause of the immortality of the human soul? If this could be done, it would as certainly infer that the *human soul is immortal*, as the proving the *brute soul immaterial* would certainly prove the *human soul immaterial* also. It is as far from being true *that all things should be different* in these two species of immaterial substance, as *that all things should be the same*. The Atheist takes it for granted, that the last of these cases is true; and many good men are alarmed lest the first of them should not be true: but both without just grounds. It might be possible to conceive such states of the *immaterial substance* in brutes, after the dissolution of their bodies, as should contradict no truth, nor infer any absurdity; and then such states must at least be *not impossible*. And in what worse state would the *human soul* be for that? Again, if it should please their Creator to annihilate them, (for otherwise it will appear by and by, that all immaterial substance must still subsist) the human soul is in never the more danger of being re-

duced to nothing: and I hope I shall make it appear, that an *infinitely just Being* could no more *annihilate* it at death, than an *infinitely powerful Being* could effect a contradiction. In fine, though they should be annihilated, we are nevertheless certain of being continued in our conscious, intelligent existence, after death, and through never-ending eternity, and if they super-exist the dissolution of their material systems, it must be for a *different purpose*; a purpose as different, at least, as the rational is from the brute nature: *for our common Author can do nothing but what is according to rule and proportion.*

XXXVIII. As to the very lowest of living creatures, fleas, mites, &c. (a) what reason
is

(a) Mr. Locke, in his controversy with the Bishop of Worcester, cited above, says, *But here I take the liberty to observe that [if] your Lordship allows brutes to have sensation, it will follow, either that God can and doth give to some parcels of matter a power of perception and thinking; or that all animals have immaterial, and consequently, according to your Lordship, immortal souls, as well as men; and to say that fleas and mites, &c. have immortal souls as well as men, will possibly be looked upon as going a great way to serve an hypothesis.* Here Mr. Locke supposes, that *sensation* implies *thinking*, as much as it implies *perception*; which is quite wrong, I conceive. Since

is there for refusing them an immaterial spontaneous mover, when we consider that the
admi-

Since he wrote, *others* have caught the hint, and brought in the *eels in vinegar*, and other *microscopical animalcula*, to expose the immateriality of souls. But when the first surprize of this novelty is over, and we begin to look where the strength of the objection lies, it disappears. Must it not appear more wonderful to us, to work a piece of mechanism in the bounds of a mite, or other animalcule, than in the bounds of a horse or an elephant? *Infinitely small things shew infinity of power, as much as infinitely great things.* In this respect then these animalcula are as great instances of the wisdom and power of God, as the largest living creatures. In the next place, doth not this mechanism as much require an external immaterial power (see N^o 13, 14, 15 of this) as any mechanism whatsoever? And who supplies this? In the last place, they move spontaneously. The objection supposes this. Spontaneous motion is different from mechanical motion, by the terms; therefore it must require a different immaterial principle, (see N^o 19, 20). Where is the difficulty in all this? Or rather in what particular is it not demonstrative? But perhaps the *Authors* who start this objection, imagined it would be unkind not to allow these little animals to be certain *by-blows, the effects of chance, or of the natural powers of matter?* Or that *infinite power doth not reach to infinitely small things; but that this is a field for any bungling cause to work in?* But let us imagine the difference of circulation, and the various laws of œconomy in the various species of these creatures, and we shall conceive of them

admirable structure of their little bodies is the work of infinite Wisdom, and that infinite Power vouchsafes to concur incessantly with all their spontaneous motions? Philosophy doth not countenance us in saying *that immaterial substance costs the Creator more pains in making, than matter doth; so that there should be a scarcity of it; or that it is too good to be wasted, when we see his own wisdom and*

in quite another light. To which purpose I shall here subjoin a paragraph from Dr. Keil's *Introduct. ad ver. Physic.* lect. 5. *Cum animalculum quodvis sit corpus organicum, perpendamus paulisper, quam delicatulæ & subtiles esse debent partes ad ipsum constituendum, & ad vitalem actionem conservandam necessariæ. Haud mehercule facile concipitur, quo pacto in tam angusto spatiolo comprehendî possint; cor, quod ipsius vitæ fons est, muscoli ad motum necessarii, glandulæ ad liquores secernendos, ventriculus & intestina ad alimenta digerenda, & alia membra innumera sine quibus animal esse non potest. Sed cum singula memorata membra sunt etiam corpora organica, alias etiam habebunt partes ad suas actiones necessarias. Constabunt enim ex fibris, membranulis, tunicis, venis, arteriis, nervis & hisce similibus canaliculis numero fere infinitis, quorum exilitas imaginationis vires superare videtur. At his infinitè prope-modum minores esse debent partes fluidi, quod per canaliculos hosce decurrit, nempe sanguis, lympa & spiritus animales, quorum in grandioribus animalibus incredibilis est subtilitas.* Is this work for any thing but infinite Power! Certainly this objection is ill chosen,

power

power so eminently laid out, in so little room. I shall shew in another place, that the faculty called *instinct*, is most remarkable in the lowest, most contemptible *creatures*; and that this *instinct* is nothing but the *immediate direction* and *guidance* of the Divine Wisdom, to supply the power of reason, which these creatures want. And since in the question about the immortality of the soul, the brute-soul is, on all occasions, brought in on a parity with the human, I shall there endeavour to assign the difference between the rational and brute-nature; since it already appears not to be a difference of substances, but of powers belonging to one and the same kind of substance.

SECT.

SECT. III.

The natural immortality of the soul shewn from its being a simple or un compounded substance ; what this immortality imports.

AFTER what has been said, it might not perhaps be improper to examine the arguments that are generally brought to shew the materiality of the soul, or the objections against its being immaterial, upon which our prejudices make us lay great stress; for though when a thing is once proved true, we need not much concern ourselves with what is said against it, since there cannot be contrary truths; yet (as hath been lately well observed) since objections founded upon prejudice gain easy admittance, and few words serve to make them understood, it will not be amiss to take notice of these: but this may be done with more ease and clearness a little farther on. Wherefore that we may the better understand the nature of the human soul, let us next consider the consequences

sequences of its being *a simple or uncompound-
ed substance*; for if it were made up of parts,
as matter is, it might be contended that it
could naturally be resolved into these parts
again, by the action of something or other
upon it; whereas if it hath no parts, or is but
one single uncompounded thing, we shall be
satisfied in our own way, that it is liable but
to one change, or casualty, *viz.* to be anni-
hilated, or to be destroyed by a Being to
whose power that effect is competent. In or-
der to this, and to help us to get the better
of some of our prejudices, whereby we are
still applying the properties of matter to spi-
rit, by which, in propriety we should always
mean immaterial substance (*a*); I shall pre-
mise the following observations,

II. *No*

(*a*) Mr. *Locke*, in his controversy with the Bishop of
Worcester mentioned above, endeavours to justify his
using the word *spirit* for a thinking substance, without
excluding materiality out of it, by the authority of *Vir-
gil* and *Cicero*: where he says——“ Whether they
“ thought right in this [that the soul might be only a
“ subtil matter, which might come under the name of
“ *aura*, or *ignis* or *æther*,] I do not say: that is not the
“ question; but whether they spoke properly, when they
“ called an active thinking substance, out of which they
“ excluded

II. *No substance or being can have a natural tendency to annihilation, or to become nothing.* That a being which once exists should cease to exist, is a real effect, and must be produced by a real cause: but this cause could not be planted in the nature of any substance or *Being*, to become a tendency of its nature; for *it could not be a free cause*, otherwise it must be a *Being* itself, the subject of the *attribute freedom*, and therefore not the property of another *Being*; nor a *necessary cause*, for such a cause is only the effect of something imposing that necessity, and so no cause at all. *Necessary causes* and *passive pow-*

“ excluded only gross and palpable matter, *spiritus*, spi-
 “ rit, &c.” But with submission, I think no man ever before defended *the propriety* of an expression, exclusive of *the truth* of it, in a philosophical controversy. If the acceptance of a word is such as determines the question, without farther argument, as in this case, to justify the propriety of it then, is to make the common use of language decide in points of philosophy. If *Cicero* or *Virgil* had wrong ideas as to the immateriality of the soul, though they expressed these wrong ideas right, that doth not mend the matter. The dispute between the Bishop and Mr. *Lockè*, was, whether matter could think, and not the classical acceptance of the word *spiritus*.

ers deny the thing they seem to express. This effect therefore must be the operation and efficiency of another *Being ab extra*. One of our prejudices here is, that we imagine *Beings* may have a natural tendency to change their nature; but then their nature would be inconsistent, and destructive of itself (*b*); and the same argument may be applied here to the natural state of being, in general, as was applied at N° 14. of the first section to the state of rest or motion of matter in particular; since that is but one particular cause of the natural state of being. For a tendency to persevere in the same state of nature, and a tendency to change it, are contradictories, and impossible to be planted in the same subject at once: or (not to urge the contradiction) if the last prevailed, the remaining in the same state, for any given time, would be impossible. We forget the true cause of all these tendencies, *the will of God*, which it is absurd to suppose con-

(*b*) The natures of things are only the ideas in the divine intellect, consistent to be made subsist together in the same subject, *extra intellectum*; but the idea of a tendency destructive of that nature (*i. e.* of those other ideas) must have been inconsistent with them; which points out to us the origin of the contradiction.

trary to itself. The tendency in matter to persevere in the same state of rest or motion is nothing but the will of the Creator, who preserves all things in their existence, and manner of existence (*c*): nor can we have recourse to another cause for the preservation of immaterial substance in its existence and manner of existence; taking manner of existence in a larger sense, (because being active it can change the state of its cogitation (*d*)). Therefore, as I said, these tendencies are originally to be ascribed to the will of God, and it is absurd to

(*c*) *Desinant jam Philosophi continuati motus exquirere causam, alia quippe agnoscenda est nulla præter primam illam, quæ non modo motum, sed res omnes in esse suo conservat; Deum scil. Opt. Max. nec aliâ ratione perseverat motus, quàm quâ continuatur corporis alicujus figura, color, aut aliæ quævis istiusmodi affectionum, quæ semper eadem permanerent, nisi vis aliqua externa eas turbaverit. Introduc. ad Ver. Physic. Lect. II.*

(*d*) The first existence of matter, and every change in the manner of its existence, requires an immaterial Cause. And though every change of the manner of the existence of spirit, doth not immediately proceed from the power of God, being active itself in changing the state of its cogitation; yet the having received this activity shews it no less dependent on the will of the Creator, than if it were preserved in one continued state of inactivity.

suppose

suppose them contrary. What we suppose a *tendency of nature* to a change in material things, is but the *gradual effect of an exterior cause*, or immaterial power, working a change in them, as when iron exposed to the air is gradually consumed to rust, which is mistaken for a natural tendency, because of the slowness and imperceptibleness of the operation (*e*). Another of our prejudices is, that we argue from a change of accidents of the same substance, to a change of the substance itself, (though a change of substance is improperly called a change): and because some exterior thing is still effecting these changes of accidents, in such material objects as we are most familiar with, we imagine that immaterial substance or being may have a natural tendency to decay or become nothing. But methinks we should quit this prejudice, when we see, that even this change of accidents of

(*e*) Philosophers observe this is effected by a fermentation, which, by the last section, is no natural power of matter. “ For air (says Sir *Is. Newton*, *Opt.* p. 355.) abounds with acid vapours fit to promote fermentations, as appears by rusting of iron and copper in it, the kindling of fire by blowing, and the beating of the heart by means of respiration.

natural

natural bodies is not effected without the concurrence of Almighty Power.

III. *No being, though it hath power, can have such power as to annihilate itself:* for then it ought to have power to effect that it should have no power, which is contradictory; since we are forced to suppose the thing still remaining, which we suppose taken away. If a cause produceth an effect, it must have power to finish that effect; otherwise it could not be the cause of it: and in this case if it had power to finish the effect, the effect could not be finished, that power still remaining. It is therefore the same contradiction to suppose that a being should annihilate itself, as that it should create itself; namely, *that it should act when it is not*. Yet we contract a prejudice, which makes us fancy that a *Being* could put an end to itself, as when a man gives himself a deadly wound. But it is begging the question to say that a man annihilates himself in such a case; and it is from such instances only that we contract this prejudice. The strength of the man's arm doth that, which, with the subsequent efficiency of other causes, brings on the end of life; which

it is not allowed is the end of *being*, more than the change of figure or position in matter is the annihilation of matter. In the present case, by supposition, no cause co-operates besides the power of the *being* itself; and there is no tendency to annihilation in the nature of any being without the efficiency of some other cause, by what was said just now, N° 2. but chiefly, by what is said there, it is God who preserves all things in *being* and existence: therefore no *being* can annihilate either itself, or any other *being*, without it were supposed able to resist infinity of power, which constantly preserves them.

IV. It will be said, since finite *Beings* have no tendency to annihilation, there will be need of no power to preserve them in their natural state. But to this it is answered first, that any *being* (this stone for instance) as existing this minute, hath no necessary connexion with itself, as existing the next. This is of the nature of all contingent *beings*; every minute of their existence is independent of all the rest, and therefore *must depend upon something else*: for their existence by the terms, is not absolutely independent of

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all things; otherwise it would not be *contingent*, but necessary. If the existence of a *being* this minute inferred its existence the next, it would be a physical contradiction that any thing that had ever once existed, should ever cease to exist; and *contingent existence* would be the cause of *necessary existence*; which is absurd. And secondly, this brings us, by another kind of reasoning, to what was asserted N^o 2. and which is the chief answer to this objection, that the non-tendency of beings to change their state, or their tendency to persevere in their *being* and existence, hath no other cause but the *will* of God; and that tendency is but this continued act of his will exerted, and taking effect. It would be absurd then to say, because the tendency of *beings* to remain in their state of existence, supposes the constant concurrence of the will and power of God; therefore such a tendency supersedes the will and power of God in their actual preservation: and yet the objection comes just to this. We saw in the last section, when speaking of the cohesion of matter, that it is a continual power impressed, which constitutes the solidity of it. And generally,
since

since *to will* and *to do*, is the same thing to infinite power, *the preservation* of all things, whether material or immaterial, is the same, or equal to *a continued creation*. A continued act of the will is a continued act: a suspension of an act of the will is itself a positive act, (as will appear in the next section). And therefore the preservation of *being*, and its annihilation, require as positive an act, as its creation.

V. These things being premised, it appears that all substance equally, as well material as immaterial, cannot cease to exist but by an effect of infinite Power. And the only remaining change it can be liable to from the agency of any second cause, is in its accidents, or such properties as are not necessary to it, as such a substance; but which being altered, it remains still a substance with the same fundamental and specific properties it had before; *that is*, still the same substance.

VI. All the changes of this kind, which happen to matter, are effected in it, because it is a substance compounded of parts, and again divisible into parts, each of which is a

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solid, extended, divisible, figured substance; or hath *the essential properties* of the whole of which it is a part, as much as the whole hath. For in any indivisible of matter, supposing such were possible, we can conceive no change possible: because it would imply a contradiction. It could not be changed in solidity or extension; that would be to change it in quantity, which could only be effected by adding parts to it, which is no change in itself; or by taking parts from it, which by supposition it hath not. It could not be changed in figure or dimensions, without a change of the position of parts, which it hath not. If it should be said, that it might be changed from rest to motion, or from motion to rest, this is no change of this indivisible considered alone, but a change of it considered with relation to something else; to wit, other parts, the distance between which and it is changed. Even in *absolute motion* nothing is effected but a determination of the inactivity, or resistance, to one part more than another, which is no intrinsic mutation of substance or substantial properties (*f*). In short, this indivisible could undergo

(*f*) In absolute or real motion, the force, moment or resistance, is only determined to one side, I think, or receives

dergo no change in itself, no not from any power, but a change of substance, or annihilation,

receives a particular direction, but is not changed in quantity, unless we take it relatively, or with respect to a terminus *à quo*. By N^o 12. of the first section, if we fix on such a terminus, the resistance of matter is endlessly increasible. In receding from the terminus of rest, it may always receive another degree of celerity, and therefore will make another degree of resistance. This is because of the degree of resistance it made to receive that celerity. It could not make two degrees of resistance to be stopt, unless it had made two degrees of resistance to be put up into that motion. So that the increase of moment supposes a previous repetition of equal resistances to equal changes. And therefore this resistance taken absolutely, is always the same, as much as the inactivity is, as in N^o 13. of that section. However; in case one should be tenacious of the contrary, not much depends on this. But having mentioned moment as an affection of real motion in matter, let me be permitted to explain, and restrain a little, what Mr. *Locke* hath advanced concerning the motion of all finite spirits. In Book 2. chap. 23. sect. 17 and 18. having enumerated the primary ideas peculiar to *body* and *spirit*, as contradistinguished to each other, he makes *mobility* common to them both; which he illustrates and defends, sect. 19, 20 and 21. He hath before ascribed *motivity*, or a power of putting body into motion by thought, to spirit, as one of the ideas peculiar to it; so that by *mobility* he seems to mean a capacity in spirit of being moved, by something *ab extra*, and not the power of moving, which is

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hilation, which is not a change properly speaking. If the matter of our bodies were

such included in *motivity*; especially since he makes mobility common to both matter and spirit. Which, with submission, I think is very wrong, and tends to confound the natures of the two substances he would distinguish. We say a thing is moveable, which can be moved by a force applied *ab extra*: thus a *table* or a *chair* is moveable. And consequently we call a thing immoveable which no force applied, or that we can apply, is able to move: thus a house or a mountain is said to be immoveable. Now a substance that no way impedes motion, but effects it, can with no propriety, I think, have the capacity of mobility ascribed to it, as it is ascribed to body, a substance which resists motion, and no way effects it, and therefore wants an external mover. To make spirit material, and so at once both to cause and hinder motion, is a plain contradiction. Spirit, it is true, stops motion; but it is by the same *living efficacy*, by which it begins it; not by a *deadness and resistance in itself to be moved*. Besides, a spirit when it moves, hath no *moment*, as body hath, proceeding from its *vis inertiae*. It cannot be said to resist being brought from motion to rest or from rest to motion; since it effects these changes. If it moved circularly, it could have no centrifugal force. When a man walks, his spirit moves his body; but is not moved by it. If both were moved, there would be no mover. Nay, even in the journey betwixt *London* and *Oxford*, where the man's spirit is not the mover, but the horses move the coach, his body and all, his spirit doth not impede the motion, or make the draught heavier;

or

such an indivisible, we could be affected with none of the vicissitudes we are now affected with; but our material part would be as indissoluble as now our thinking part is, which is indeed affected with the changes of the

or is not properly a moved. So that, in effect, mobility doth not belong in common both to body and spirit. Nor farther, can motion belong to both, but in very different senses. Mr. *Locke* says, sect. 19—"For having no other
"idea of motion, but change of distance with other beings
"that are considered as at rest; and finding that spirits,
" &c." It is true, spirits change place, and motion in this sense is competent to all finite spirits. But in this motion they are not *moved* but *movers*; which is the distinction endeavoured to be *confounded*. Sceptical people conclude from this, that whatever moves is material. But it will not follow that whatever moves, as a mover, is material, and has the relations of matter. *For in the idea of the motion of body, a moved, and not a mover is implied*; and the affections of *moment*, *resistance*, and *tendency to move in the same straight and uniform direction*, are necessarily included. Were there but one body in the Universe, these affections would inseparably attend its motion; and yet then the relation of distance would never shew motion. The distinction of *ubi* and *in loco*, which Mr. *Locke* observes, sect. 21. to be of little use to our conception, was introduced probably, to signify that body and spirit occupy space after a different manner; though we cannot conceive that difference of manner.

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body, but without any fundamental change or alteration in it's own substance.

VII. All the changes then which happen to matter, are affected in it, because it is a substance compounded of parts, and again divisible into parts, each of which is a solid, divisible, extended, figured substance, or hath the *essential properties* of the *whole* of which it is a *part*, as much as the whole hath. But surely this can never be said of *active perceptive substance* that it is compounded of parts, which are likewise *active perceptive substances* ; we should then have as many different perceptions and consciousnesses as there were different parts of the soul : nor could such parts subject an active perceptive substance to mortality, or corruption, though separated ; for these parts could not be other than active perceptive substances, as much as the whole is whose parts they are, any more than the parts of Matter could be unsolid or unextended. Parts of any substance must be of the same substance, by the terms, and of the same nature with the whole, of which they are parts ; differing only from the whole in more or less, but not in nature and fundamental

damental properties; otherwise *the substance of these parts* would not be the same with that of the whole: or they would be parts of the same substance, and not of the same substance, which is contradictory. This is implied, I say, by the terms, when we say *parts of the same substance*; for that is the same substance considered as having parts in it; where, by the supposition, the substance, and therefore the substantial properties in the parts, are the same as in the whole. That which adds weight to this reasoning is, that as it appeared in the last *section*, that activity and perceptivity *can belong only to immaterial substance*; so it shall be shewn in the next, *that they must always belong to it*, or are inseparable from it. Therefore, if this substance hath parts, every part must be active and perceptive. And the actual separation of such parts could never be the corruption, or death, of active, perceptive, or living substance, but rather the generation of many.

VIII. A living substance could not consist of other living substances, as a dead substance may be the aggregate of other dead substances, upon this farther account. *Deadness is a*
mere

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mere negation, and doth not want a principle of individuality, to restrain and appropriate it to any part of the aggregate. It would be absurd to say, the deadness of every part is its own particular, or individual deadness, which can be ascribed to no other part; and the deadness of the whole is likewise its individual deadness, which must be different from the deadness of all the parts. It would be absurd, I say, to speak thus. But activity being a *positive power*, wants a principle of individuality; or the activity of any part, must as certainly be the power of that part, and not of another, as its substance is the substance of it only, and not the substance of another. Or if we consider the activity of any part as a property, it must have that part, in exclusion of all others, as the subject of its inhesion. And we may reason the same way with the perceptivity. If every part were perceptive, nothing could hinder the perceptions from being different, and as many as the parts. Thus necessarily there would be a confusion and multiplicity of different activities and perceptivities in active perceptive substances that consisted of other active perceptive parts. And if we can stop
at

at these parts, of which we have been speaking, it is well: but if we are forced to allow of active perceptive substances that do not consist of parts; why should we contend at all *for parts* in such substances from the beginning? And if we contend *for parts* at all, what reason can there be given for stopping at these parts, and not contending for other and other parts *in infinitum*, which will make the absurdity monstrous? And in either case, the activity and perceptivity *of the whole* could never be one simple and uncompounded activity and perceptivity; or be individual *to it*, in opposition *to the parts*: but contrarily, the activity and perceptivity *of each part* would have its principle of individuality *in that part*, in opposition *to the whole*; and all together, they would appear various, confused, and divided; and *one individual living being* could never result from them. If it should be said, that the activity and perceptivity *of each part* would not be different from that *of another*; it is as if we should say, the subjects of inhesion of these properties would not be different the one from the other, or that these parts are but one and the same part, or that the soul is not made up of parts, or *is indivisible*.

IX. The parts of active, perceptive substance, if it could have any, must be also active and perceptive from this consideration, that to suppose it otherwise is to allow *that activity and perceptivity may result from the joining together dead inert parts*; which is the same contradiction, whether we allow it in material or immaterial substance: for it is to make the effect perfecter than the cause, by supposing perceptivity and spontaneity both of motion and thought, and reason itself, to arise from the *mere addition, or junction*, of things dead and inert, to other things equally dead and inert. We shall see, when we come again to speak of Mr. *Locke's superadded property* of life, sense, and spontaneous motion, that it could have no subject of inherence, besides the mere junction of dead parts to dead parts: but that *junction or addition*, which is itself a property, should be the subject of another property, is against sense and reason. Therefore again, if an active perceptive substance can have parts, they must of necessity be active and perceptive. And if these parts are indivisible, we are at length come to indivisible living substances; and as such, not
 liable

liable to any change except annihilation. But he who contends, that living substance must be compounded of parts, cannot consistently with himself be supposed to stop any where, but must rather assert that these parts are still divisible into other parts: in which case he must likewise say that each part, in any division, or subdivision, is active and perceptive, for the reason just now assigned, *viz.* because otherwise the whole could not be active and perceptive. This would be to multiply living beings endlessly, instead of shewing that they are mortal and corruptible. Nor could he make an *individual living soul* out of a composition of these. The consciousness resulting from the activity and perceptivity of each part would be various and infinite. From what is already said, we cannot be at a loss for an answer, if any one should be so humourfom as to say, that active perceptive substance may be compounded of dissimilar parts, some of which only are active, and others inert: for the first sort only, excluding the last, would be active substance.

X. Thus a living substance made up of dead parts is a contradiction; and a living
substance

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substance made up of living parts, is not one living substance, but as many distinct living substances, as there are distinct living parts in it. And indeed this composition and divisibility of living substance must infer the same consequences, as if we supposed matter a thinking living substance: the same multiplicity, or rather infinite variety of consciousness and perception, must be as well in the one case as the other. But this is not only false, as plainly appears from the simplicity of our consciousness and perception, but cannot possibly be of any service to those who assert the soul's mortality; for since every part must be a living part into which either substance, be it matter or spirit, is divisible, because a living whole could never be made up out of any number of dead parts: They must necessarily of course by this supposed divisibility, multiply living beings without end, or at last stop at indivisible living substances, which are liable to no essential alteration, and can never cease to be by any other means than annihilation. And from hence it follows, that parts and divisibility are not affections consistent with active perceptive substance, which must be one, and simple, without

without composition. *Divisibility* is such an affection of substance, as shews on the one hand, that matter, because divisible, cannot think, or be a living substance; and on the other, that spiritual substance, because thinking, cannot be divisible, or have parts.

XI. The human soul then, having no parts, must be indissoluble in its nature, by any thing that hath not power to destroy or annihilate it. And since it hath not a natural tendency to annihilation, nor a power to annihilate itself, nor can be annihilated by any *being* finitely powerful only; without an immediate act of the omnipotent Creator to annihilate it, *it must endlessly abide an active perceptive substance, without either fear or hopes of dying through all eternity.* Which is, in other words, to be immortal as to the agency of all natural, or second causes; *i. e.* naturally immortal. And this is the immortality which the Atheist, and really in the general what all men insist most upon. We insist to have it proved in our own way; and demand that it may be shewn immaterial, simple and uncompounded in its nature, as a pledge and security that it is never to die. *Lucretius*
places

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places the mortality of it in its being material; and when he imagines he hath proved that, he adds, as the criterion of immortality, that such a substance must be simple without parts, because a change or loss of parts is the death of that thing (g). It is true, the immateriality of the soul is a satisfying pleasant contemplation, especially when we perceive that it is impossible that ever matter can become active or percipient, by any power, or in any the least degree, and in consequence of this discovery come to the knowledge of several other most weighty and useful truths: but were there not more direct and proper proofs, the endless duration of the human soul would remain precarious. The Atheist artfully seeks the least direct and remotest kind of proof; both because he thinks

(g) *At neque transferri sibi parteis, nec tribui vult,
Immortale quod est quicquam: nec diffuere hilum;
Nam quodcunque suis mutatum finibus exit,
Continuò hoc mors est illius quod fuit ante.*

Lib. 3. ver. 516.

And after at ver. 807. he says,

*Præterea quæcunque manent æterna, necesse 'st,
Aut quia sunt solido cum corpore, respuere ietus, —
Aut ideo durare ætatem posse per omnem,
Plagarum quia sunt expertia; sicut inane 'st,
Quod manet intactum, neque ab ietu frangitur hilum.*

it

it hardest to be given, and because, when given, it proves not enough; for if that only could be given, he would not want other subterfuges, the last of which I shall endeavour to prevent in the next section. Indeed the necessary perfections of the Deity, which stand engaged for, and demand our appearance in a second period; and the nature of our rational pleasures and desires, which shew that we were designed by an infinitely rational being for endless existence, are the things that give the sanction of demonstration to the immortality of the soul. No very great stress could else be laid upon the simplicity or divisibility of its substance; since surely we may say, it would be as easy for Omnipotence to destroy a simple substance, as for second causes to dissolve a compounded one. Let it be considered, that immateriality is as certainly competent to the souls of brutes, as of men: but the arguments proving the last immortal, from the rational nature, and the necessary perfections of the Deity, are altogether incompetent to them. And it hath been the constant endeavour of the Sceptic to shew a parity, and run a parallel, between these

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two species (*b*). Besides, from what hath been said in the last section, it is plain, that
even

(*b*) And many good men (as was said in the end of the last section) are needlessly terrified lest every thing should not be different in these two species; hence they fight against the immateriality of brute-souls, as *the most dreadful phenomenon* philosophy could discover. Thus a learned and pious Author (see the Book called *The procedure, extent, and limits of human Understanding*, p. 173, 174.) says, “ They who hold sensitive perception in
“ brutes to be an argument of the immateriality of their
“ souls, find themselves under a necessity of allowing
“ those souls to be naturally immortal likewise: and they
“ are so embarrassed in thinking how to dispose of those
“ irrational immortal souls after the dissolution of their
“ bodies, and what sort of immortality to conceive for
“ them, that they imagine them all to return to the great
“ soul or spirit of the world; or by a metempsychosis to
“ pass into the bodies of succeeding animals; and then
“ when they have done their work, at the end of the
“ world, they are to be discharged out of being, and a-
“ gain reduced to their primitive nothing.” Let me ask, if this be a good argument, that we are not to allow brutes to be actuated by an immaterial substance (though reason evinces it), because we cannot tell how the Creator disposes of these souls, after the dissolution of their bodies? *Why should any man embarrass himself about this?* Cannot the thing be done without his contrivance? Or when their little bodies were formed with such inexpressible art and power, was this point left to the determination of Philosophers?

even compounded, or material substances, are not dissolved, and much less could they be

phers? Here it is forgot that by natural immortality, no more can be meant, than that a being should exist as long as God doth not extinguish it; or as long as he supports and preserves it: and thus there's no being but what is naturally immortal. Even our bodies might be thus immortal, God so willing it. Nay, otherwise there is no being at all but what is naturally mortal. By natural immortality cannot be meant that any being of itself, and abstracting from the will and concurrence of God, would remain for ever. No being is thus immortal. How absurd is it, when all immortality is founded on the *will* and *design* of God, to seek for a demonstration of it in *the nature of the created being itself!*

The Author continues, “ But if these souls are once
“ granted to be immaterial, it is utterly inconceivable
“ that they should not naturally have the same immor-
“ tality with those which are human; since we cannot
“ with any sense or consistency distinguish two diffe-
“ rent kinds of immortality for created spirits. If the soul
“ of brutes is immortal, that cannot, when separated,
“ be thought to remain altogether in a state of utter in-
“ activity and insensibility, which communicated sense
“ and activity to matter while in conjunction with it.
“ And if so, they must be sensible of happiness or mis-
“ ery; and, in some degree, liable to rewards and punish-
“ ments as eternal as their souls.” Here let me observe,
that *the human soul being rational, and the brute soul not,*
the one a moral agent, and the other not, is the foundation

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be destroyed, without the immediate power of God: and *natural agency*, or the *natural powers*

of a very consistent and solid distinction, I conceive, between the one and the other, *as to immortality*; so far is it from being utterly inconceivable! Here *immortality* seems wholly founded upon *immateriality*, which is extremely wrong. Besides, an agent not moral, though capable of pleasure or pain, is not capable of rewards and punishments, by the very terms, I suppose. Moreover, brutes have not the noblest kind of activity, even here, in a state of union; *viz.* the command over their past perceptions; and so this Author cannot argue for that species of activity in their soul when separated. That which communicated activity to matter when in conjunction with it, cannot indeed be utterly, nor any way, inactive, when separated from it. But if this be so with respect to the brute soul; why is it all along said with respect to the human soul by this Author, *that thought and perception is the joint action of matter and spirit in essential union*, as he chuses to express it? He who allows *thought* to be the action, or effect of matter (though but as a partial cause, or co-efficient) will hardly be able to prove the necessary activity of separate spirits. He concludes, “ What heightens the absurdity of this way
 “ of thinking is, that in imagining the souls of brutes
 “ to be immaterial, men must necessarily distinguish a
 “ great variety of them both in nature and degree; one
 “ sort for birds, another for beasts, and another for fishes.
 “ And these must be all subdivided again into very different species of immaterial souls, according to the
 “ different

therefore naturally immortal, 245

powers of matter, is (like chance) only a name for our ignorance, or at least for our inat-

“ different sorts there are under each of these general
“ heads. Nay, every fly and insect must on this sup-
“ position have some sort of immaterial soul, even down
“ to the cheese-mite; and what is yet more absurd is,
“ that there must be an infinite variety of immortalities
“ imagined to suit the rank and condition of every in-
“ dividual, living, sensible creature.” No certainly
(say I) not one species of immortality needs be ima-
gined, but all left to the wisdom and power of the Crea-
tor, who, as hath been observed before, doth not dis-
dain to manifest the wonders of his knowledge and pow-
er in the narrow bounds of these insect-bodies, nay, to
actuate their surprizing mechanism continually. We are
not so much as certain of their immortality; for the im-
materiality, from which it is here inferred, is not conclu-
sive; unless this Author shews how. And when he hath
done that, he will have done no harm to philosophy. Last-
ly, why is the absurdity so much heightened by different
species of immaterial souls, more than by different species
of material bodies? There is really no absurdity here but
this, that we chalk out a method for Omnipotence; and
then reckon every deviation from that method absurd:
and so, if matter of fact did not convince us, we might
prove the existence of so many different species of ma-
terial bodies impossible. What is here said to heighten
the absurdity, *viz.* that men must distinguish a great va-
riety of immaterial souls both in nature and degree,
for insects, fishes, birds and beasts, ought rather per-

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inattention. If then, without his act, a hair could not fall from our head, which is true

in
haps to be looked upon as a very great beauty of the creation, and that which shews *the rising scale of immaterial beings maintained*. It would be a wide gap, if there were nothing between dead matter and the *human soul*; when we see such a *gradation* of workmanship and perfection maintained from rude, unformed earth, through all the species of plants and animals, up to the *human body*. And since the scale of immaterial Beings is thus carried up to the human soul, it cannot certainly end there.

Another late Author, I think, speaks more rationally (Dr. Thomas Burnet's *Demonstration*, &c. p. 92.)—

“ Hence, says he, it will follow, by necessary consequence, that every rational, sensible, and living creature must be endued with some immaterial principle, which is the cause of all their rational, sensible, or animal operations, &c.” And below,--“ Thus much we may say with safety, that it is not inconsistent with reason, that there may be several degrees and orders of immaterial beings, with different powers and faculties, according to their different ends; and that such of these as are made to actuate bodies, may be put into different bodies, according to their different capacities; and when the immaterial beings are separated from these bodies, so that the bodies are dead, it is not inconsistent to imagine, that they may transmigrate into other bodies, and when they have finished that course they were made for, they may either at last be annihilated, or if they are capable of any re-
ward,

therefore naturally immortal. 247

in a literal and physical sense; our souls, tho' compounded, must endure for ever, without his act to dissolve them.

“ward, God may have provided proper recompences
“for them, according to their several natures and capacities. There is nothing in all this but what is reasonable.” Now if even we can conceive more ways possible, and not inconsistent, how they may be disposed of; where is the absurdity consequent upon allowing them to be immaterial! *Though*, as this last Author well observes a little before, *it is none of our business to determine what becomes of them after death.*

We should never dissemble any truth for fear of its consequences. It is directly impossible that truth should have any bad consequences. The things we are afraid of may be but our own particular prejudices; and I think it is so in the present case, with respect to the immateriality of the brute soul. Besides, if we deny these to be immaterial, we deny the most convincing argument for the immateriality of the human soul, taken from the necessary inactivity of matter. And thus this learned and pious Author, while he is zealous to establish the immortality of the soul, because of its being immaterial, goes in effect a great way to deny that very immateriality; and thus seems to defeat his own design. The Sceptic, though he is never consistent with himself, is yet very clear-sighted to discover these inconsistencies in his Adversaries; and fails not to improve them to his own purposes.

SECT. IV.

That the soul after death is not in a state of insensibility, torpor, or deadness; but must still remain an active living being, when separated from the body. The controversy between Mr. Locke, and his adversaries considered, whether the soul thinks always, &c.

WE shall still see farther into the nature of the human soul, and be the better able to deal with sceptical objections; if we next examine, whether it is necessarily active and perceptive, so that activity and perceptivity are inseparable from it. This hath been asserted above, at N^o 7. of the last section, where the argument in part depends on the proof of it: and though it is but the just consequence of what is already said; yet since we oftener reflect upon the seeming state of inactivity and imperceptivity, which the soul is successively thrown into, while joined to the body, and rather draw our guesses

guesSES about its power and life in a state of separation, from these, and conclude from just reasoning concerning the nature of such a substance; it will be necessary to be particular in this point. And lest an ambiguous use of words, not importing precisely the same thing, should perplex this matter, it is to be observed, that by *activity* and *perceptivity*, can only properly be meant, a *power* of acting and a *capacity* of perceiving, (or let both these be called sometimes powers, to save words); and by being active and perceptive, is meant the exercise of these powers, or real action and perception: though perhaps this distinction hath not been exactly observed before, where it was conceived nothing depended upon it. And first let us consider, whether the soul hath the powers themselves, in a state of separation; and, if it hath, whether it then exercises them; and lastly, whether it necessarily exercises them then, or cannot be *not-active* and *not-percipient*, so to speak, when either entirely separated from matter, or joined to a system of matter always rightly disposed.

II. Now that a substance having the power of action, while joined to another dead substance, as the soul hath while joined to the body, by what is said, *sect. 2.* should only have this power while joined to that dead substance, and be deprived of it when separated from that, includes this plain contradiction, that a substance having (separately) no power to act, by being joined to another substance, having also no power to act, (which is true of the body universally) acquires a power of action, and exercises that power. Which is the same thing as to say that this power is an effect, and yet of nothing ; *for the uniting together of two powerless substances can never be the cause of this power.* It will be needless to reply, that two inactive sorts of matter, or liquors, by being united, or mixed, will act, stir, or ferment ; since it hath been shewn above, (*sect. 1. N^o 14, 15, &c. and sect. 2. N^o 3, 4, 5, &c.*) that instances of this kind are the effect of something not matter, an immaterial power immediately impressed. The mutual action of the particles on each other in all such instances, shews their inertness, or resistance to
a change

a change of state, and *an inert active* particle of matter is a glaring contradiction. Besides that in all such cases, a prodigious force is exerted by the least particles, which is directly against the possibility of their being the mechanical cause of such force themselves, as hath at large been shewn (*a*). Besides, there

(*a*) Let the following instances be considered in this light (Sir *Is. Newton's Opticks*, p. 352.) “ And when
“ water and oil of vitriol poured successively into the
“ same vessel grow very hot in the mixing, does not
“ this heat argue a great motion in the parts of the li-
“ quors? And does not this motion argue that the parts
“ of the two liquors in mixing coalesce with violence,
“ and by consequence rush towards one another with
“ an accelerated motion? And when Aqua fortis or
“ spirit of vitriol poured upon filings of iron, dissolves
“ the filings with a great heat and ebullition, is not
“ this heat and ebullition effected by a violent motion
“ of the parts, and does not that motion argue that the
“ acid parts of the liquor rush towards the parts of
“ the metal with violence, and run forcibly into its
“ pores, till they get between its outmost particles, and
“ the main mass of the metal, and surrounding those
“ particles loosen them from the main mass, and set
“ them at liberty to float off into the water?” To
read this lively description, it would appear that *these*
small particles set about their work, like so many *lit-*
tle engineers, and demolish one of the hardest metals
we know, which the grinding between solid rocks could
never

there is no arguing for the possibility of a contradiction, such as *that two powerless substances should beget power between them by being united*. If two substances, both without power by supposition, when separate, should, by their union, beget power, it would be no longer impossible for matter to think ; for the inactive parts of the same substance might as well become active by being joined, as two different substances both inactive. It is the want of power in the things themselves that makes the contradiction, not their diversity. How surprising then is our general prejudice and inattention ! Though power is the perfectest and most precious thing in the world, and nothing could be a cause without it, nothing could make up the loss of it, if it were deficient ; yet we think nothing easier to be found, or to be supplied ! We allow, for instance, never perform. It is even obvious to common sense, whatever hath been thought hitherto, that it is impossible this should be the effect of sluggish things, imperceptible for their littleness, without an immaterial power exerted in them. If they perform this by moment or force it is plain they resist the impression of it : if they are attracted at a distance, it is the demonstrable effect of immaterial power. See the last part of the note (x) N^o 11. sect. 2.

stance,

stance, that two dead substances may procreate this essence of nature (so to call it) between them! And what wonder is it then if we turn Atheists and Sceptics; committing such an outrageous violence on our reason; on truth! It is what is called a circle in reasoning, and a circle of causation, to make the body, that lives by the soul, the cause of life to the soul (*b*): and it is no less an absurdity to make them mutually the cause of life and thought to each other. Wherefore we must say, that the soul hath the power of action, when not united to the body; or after it is separated from it.

III. This truth may be also made appear thus. Since it hath been shewn that matter is a dead substance in all respects, it follows that immaterial substance, or the soul, is the

(*b*) This argument is set in a fair and true light, by *Cyrus* in his dying speech to his sons, (*apud Xenoph.*) "Ουτοι εγωγε, ὦ παῖδες, (says he) ἐδὲ τὸ πᾶσι ἐπέσθην, ὡς ἡ ψυχὴ ἕως μὲν ἂν ἐν θνητῷ σώματι ᾦ, ζῇ· ὅταν δὲ τέττε ἀπαλλαγῇ, τεθνήκειν. Ὅρῳ γὰρ ὅτι τὰ θνητὰ σώματα, ὅσον ἂν ἐν αὐτοῖς χρόνον ᾦ ἡ ψυχὴ, ζῶντα παρέχεται· ἐδὲ γε ὅπως ἄφρων ἔσται ἡ ψυχὴ, ἐπειδὴν τῷ ἄφρονος σώματος δίχα γίνηται, ἐδὲ τοῦτο πέπεισμαι. Ἀλλ' ὅταν ἀκαρὸς καὶ καθαρὸς ὁ νῦς ἐκρίθῃ, τότε καὶ φρονιμώτατον εἶκός αὐτὸν εἶναι. κ. τ. λ. Both these arguments ought to be got by heart. The whole speech is divine. *only*

only thing in us that hath active power. And since it hath active power, that power must inhere in it, as in its subject; or the power must belong to the soul, *as a property of its nature*. It cannot belong to the soul as a mere accident; for (once more) power cannot be produced by accident, (or a being cannot be endued with power by accident;) otherwise we shall never be able to stop any where; all power might be thus produced by accident, and we must give up the *principles of reasoning*. And since *active power* must belong to the soul, as a property of its nature, that property cannot be separated from it; without destroying its nature altogether. For certainly power is the greatest perfection of any being, as the want of power is the greatest imperfection. And a being cannot be deprived of the greatest perfection of its nature, without having its nature altogether destroyed. Thus active power could no more be separated from the soul, without an act of Omnipotence to destroy its nature, than solidity (or *inactivity*) could be separated from matter, without an act of Omnipotence to destroy the nature of matter. And a man cannot demand a stronger proof of this point

point in reason and philosophy; for we cannot go beyond the *natures of things*; or beyond *that power* which is the origin of the natures of things, without demanding that the soul itself should be independent. All that men want is to be satisfied that power belongs to the nature of the soul itself, in opposition to its belonging to matter. And indeed it is absolutely necessary that, as one species of substance [matter] is utterly inactive, by its nature and constitution; so another species of it [spirit] should have activity and power, by its nature and constitution. This, I say, is absolutely necessary; otherwise we should make activity and power a mere accident in nature, which is prodigiously absurd. Wherefore we must say (as before) that the soul hath the power of action, when not united to the body; or after it is separated from it.

IV. If the soul hath the power of action when not united to the body, it must certainly have the capacity of perceiving then also: for to be active, without being percipient of the action, is to be active, not from an *internal principle*, or the power of action, but from *mechanical necessity*, imposed by something

thing from without. To be active implies the *will* to act. If any thing acts without willing the action, it either acts against its will, and then it is a percipient conscious *being* ; though rather forced than willing, in this case: or if it cannot have will either for or against the action, it is a *mechanical instrument* of action only, and no agent. Indeed activity imports to be living, and life without perception is not to be conceived : so that activity includes perceptivity in itself ; and whatever necessity there is for the soul's being active in a separate state, the same there is also for its being percipient then (*c*).

(*c*) We see some inferior creatures, that do not change place, almost quite divested of active power, whose perception is yet indefinited. And if we will reason from our own experience, our active power is much more liable to be impaired, than our perceptive capacity. If we cannot have activity or lay it aside at our pleasure, as will still appear more plain in going on ; common sense dictates to us, that it is still less in our power to have a capacity or lay it aside, at pleasure. Perception is often more intense, or heightened, where the active power is weakened, with respect to our bodies ; and because it is weakened, as in a gouty limb. In short, the very lowest kind of life seems to consist in the perceptive capacity : so that we can never imagine this removed from a living being. These several considerations may help us to overcome our prejudices in this particular.

V. But farther, if the soul hath the power of action in a state of separation, we must say that it hath it *always*, and without interruption, since it hath it *in itself*, and independent of matter: nor can any the least shadow of reason be conceived, why it should have it at one time and not at another; or become endued with the power of action by fits and starts. And indeed, though the exercise of the powers of activity and perceptivity may be frequently interrupted, by the indisposition of the body, with which the soul is closely united; yet it is impossible that it should at any time be without *the powers themselves*, even in a state of union with the body; or so be, at any time, that it could not act and perceive, if the indisposition of the body were taken off: for that is meant by having the power, but not the exercise of it. However, let us suppose that it were so. If the soul at any time, while it is united to matter, were in a state of total inactivity and imperceptivity, it would be in a state of *deadness*, as much as matter itself, which never had, and never can have these powers; and it would be impossible for it to recover itself out of such a state; just as

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it is impossible for any thing that never had life to make itself living. If it could recover itself, it must be by an act of the will, *i. e.* it must will its own recovery: but this is plainly contradictory; for that would infer that it was previously recovered, since it had the power of willing, that is of action. Nor could it recover itself without an act of the will; for recovering itself by the terms, ought to be its own act: but to act without willing the action, is not to act, as was shewn just now. In a word, to recover itself, is to exert the power it is supposed to want. And as it could not recover itself from this state of deadness, so neither could it be recovered from it by the dead matter of the body, which is the only refuge our prejudices can have recourse to, for kindling up new life in the soul. This would be still to incur the former contradiction of supposing *two powerless substances to procreate between them the power of action*. It is in itself the most express contradiction, that one dead substance should make another dead substance living. And there is no other cause here comes in question, on the Sceptic's supposition, besides two dead substances. To call in the aid of a *creating power*, to refurbish

nish the soul with life, would be to give up his plea. Every thing must be contrary then to what he contends for. If then at any time the soul, while united to matter, were in a state of *total* inactivity and imperceptivity, it would be in a state of *final* inactivity and imperceptivity, and the creature would be dead in all senses. Therefore we must say that in the time of the deepest sleep, or the greatest bodily indisposition, the soul retains the powers of action and perception as much as when it exercises them, or is really active and percipient. And if this be so while the soul is united to dead matter, which so far affects it, as to impede the exercise of these powers; it must be so *à fortiori*; in a state of separation. Wherefore, as before we were forced to own that activity and perceptivity belonged only to immaterial substance; so now we must own that *they belong always to it; or are inseparable from it.*

VI. Since the soul hath the power of activity, and the capacity of perceptivity; in a state of separation from matter, it must also exercise that power; or be really active, and really percipient in that state. For first, as to

activity; to give the soul a power of action always, and to deny it the exercise of that power always, unless it be united to dead matter, is to deny it the power of action, unless it be thus united to dead matter; which is to make this power the effect of its being united to dead matter; or else it is trifling about words, to give it the power of action, and yet make it want *another power* to exercise that power. At that rate, it must have a third power to exercise the second; and so on. If it hath the power in a state of separation, but never exerts any action; it must be either from defect of power, or defect of will. To say that it is from defect of power, is a contradiction in terms: it hath been shewn to have it always. If it be said, that it doth not exercise the power for want of will, it must *will* the not exercising it; which is also a contradiction in terms: for this very willing (or rather nilling) is exercising it; since *to will* implies both action and perception. And it cannot be said that it doth not *will* at all, for or against the exercising it: for a being that doth not exert an action, and yet hath the power at all times, must be free to exert it, or not. But that a free being
should

when separated from the body. 261

should do one of two things, about which its freedom is conversant, without an act of the will, is against the nature of freedom. Exercising freedom without willing, is as much as to say, exercising it mechanically, necessarily, or without freedom ; which is contradictory. Wherefore the soul really acts, sometimes at least, in a state of separation, as was asserted. As to the *capacity of perceiving*, the conclusion is still more plain. We have this capacity at all times ; and are really percipient sometimes, because active. In perceiving we are purely necessary and passive, or it is not in a living being's power to become impercipient at pleasure ; more than to become dead at pleasure ; perception is the very lowest state of living. Wherefore (abstracting from all impediments and obstructions, which are removed in a state of separation) we cannot conceive perceptivity to consist in the *bare capacity*, without the creature's being actually and indefinitely percipient.

VII. Farther therefore, the soul not only acts and perceives sometimes, in a state of separation from the body, but *it always acts*

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and perceives in that state : or, such is the nature of active perceptive substance, that it cannot *not* act and perceive in that state. The reasons for this assertion (besides what hath been just now said concerning perceptivity) are, first, that we find it is under this necessity, even while united to the body, if the body is rightly disposed. It is not in a waking man's power to banish action and perception from him. This would make strange work in the world (*d*). And the more he endeavours to do it, the more will he defeat his own design. The only way for him to accomplish this, is to render his body indisposed, by fatigue, liquor, or some other method. It is easy to observe, and shall be shewn when we come to enquire into the pains and pleasures of the body, that we cannot command sleep at our pleasure ; supposing it for the

(*d*) To become percipient, or impercipient, at pleasure, would be an effect equal to annihilating, or recreating again, the conscious Being arbitrarily. We might then elude punishment from human laws, and act what disorders we listed ; nay sport with Omnipotence itself, in a conscious, or unconscious existence. This is inconsistent with our being dependent creatures, and moral agents, and lets us see the wisdom and necessity, of ordering things otherwise

present

present to be an active impercipient state of existence, though it will appear below, N^o 23. that we cannot be sure that ever it is such. We must wait till the body hath run itself into disorder, or we must industriously procure its disorder. Since then the soul is under a necessity of being active and percipient, when the body is rightly disposed; it follows, that if the body were always thus disposed, it should be always under that necessity: or, that it should always be active and percipient, even while united to dead matter, if this system of matter were liable to no irregularity and disorder. Now, since the body cannot give it less impediment in acting and perceiving, even when best disposed, than *none at all*; and since, when separated from the body, it hath just this degree of impediment from it, *viz.* none at all; it follows that it must be then under an equal necessity at least, of acting and perceiving, as when, in a state of union with the body, the body is best disposed. If it should be said that, besides the advantage of having no impediment at all from the body, in acting and perceiving, it must have another, *that of having its perceptivity excited,*

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by the action of something external to it; otherwise it would not be percipient then; and that the matter of the body, when rightly disposed, doth this by acting upon it: it is answered, that this is still to suppose it *not percipient in itself*, but rendered such by being united to dead matter, which is the *old contradiction* still recurring. And this principle (to take off an objection here by the by) shews that *Lucretius's* great argument is an unphilosophical mistake, when he says separate spirits could not perceive without the help of the five senses (e). For to make the

ministry

(e) *Præterea, si immortalis natura animæ 'st,*

Et sentire potest, secreta à corpore nostro;

*Quinque (ut opinor) eam faciendum 'st sensibus
auctam:*

Nec ratione aliâ nosmet proponere nobis

Possumus infernas animas Acherunte vagare.

Pictores itaque, & scriptorum sæcla priora

Sic animas introduxerunt sensibus auctas.

At neque seorsum oculi, neque nares, nec manus ipsa

Esse potest animâ; neque seorsum lingua, nec aures

Absque animâ per se possunt sentire; nec esse.

Lib. 3. ver. 624.

This argument in plain English is, I think, if the soul can perceive *without body or matter*, it must have five *material organs*: a contradiction, which if he cannot fix upon his adversaries, must return on his method of reasoning.

ministry of material organs necessary (universally in a state of separation) to the perceiving external objects, is to make the perceiving them depend upon matter itself: or to make one dead substance become percipient by the help of another dead substance. Not to mention that when he wrote his philosophical solution of the phænomenon of dreaming, which takes up one whole book of six, he might have remembered that we are then percipient, when the senses are disabled and shut up. And elsewhere he hath very expressly observed, that when we are without all sense from the body, we are nevertheless still percipient (*f*). Besides, this supposition is

soning. And when considered any way, it is only an indirect method of asserting, that matter, a dead inactive substance, lives and acts, by the help of organs of the same substance. What he enforces from the *Painters* and *Poets*, doth not bring his argument nearer a conclusion. He disproves nothing, because a *Painter* could not draw the portraiture of a separate spirit; or because the *Poets* describe it analogous to our present state; or because the eyes, tongue, ears, could not perceive without the soul. Our modern sceptics would do well to find out the strength of this objection, or disown it; as also to reconcile it with the following citation.

(*f*) *Præterea molli somno cùm dedita membra,*

Effusumque

is manifestly false in fact; for the soul is percipient of its own internal actions, as in N^o 4. and it acts thus internally, without being excited to such action by the body, of which we have undeniable experience: if it were otherwise, it would still want the power of action, or receive it from matter; which is an absurdity that always returns upon us. In the last paragraph an absolute necessity hath been shewn, why it should act in a state of separation, sometimes at least, so that it is percipient also without the means of the body, contrary to the supposition on which the objection proceeds. By the power of reflection it is both the percipient, and affords the object of perception to itself, as its former perceptions become the object of subsequent ones (g). The argument from the beginning of

*Effusumque jacet sine sensu corpus onustum :
Est aliud tamen in nobis, quod tempore in illo
Multimodis agitur ; & omneis accipit in se
Lætitiæ motus, & curas cordis inaneis.*

Ibid. ver. 113.

(g) Mr. *Wollaston* says (*Relig. of Nat. Delin. sect. 5. Prop. 15. p. 91.*) Nor is it at all surprizing, that we should not be able to do this [draw an image of the soul in our minds, that is, in the soul itself]: for how can the mind be the object to itself? It may contemplate the body which it inhabits, may be conscious of its own acts, and reflect

when separated from the body. 267

of the second paragraph is universal and absolute, as being drawn from the nature of both substances separately : and therefore, once again, it doth not stand in need of the action of external matter upon it to become percipient.

VIII. But secondly, the necessity of our being always active and percipient in a separate state, will yet better appear, if we consider that though activity be a power, it is not a power to act or not to act at all : but rather a power to act this or that particular action, preferably to some other. If activity implied a power *not to act at all*, it would be contradictory to itself; for it requires no power not to act at all, or it is the negation of all power. Liberty is a power to do an action, or not to do it; but not a power to do that action, or else to do no action (*b*). There is a great

reflect upon the ideas it finds: but of its own substance it can have no adequate notion, unless it could be, as it were, object and spectator both. Only that perfect Being, whose knowledge is infinite, can thus intimately know himself.

(*b*) Mr. Locke says, (*B. 2. chap. 21. sect. 27.*) “A man standing on a cliff, is at liberty to leap twenty yards

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great difference betwixt not doing a particular action, which is one side of the alternative in liberty, and an utter abstaining from all exercise of active power, which is one side of the present question. Let us consider the terms: A power to do no action, is no power to do any action. If we had such a power, we should be wholly and finally inactive, and stand in need of the first Cause to re-create again some power in us. Or, if activity implied such a power, it should be first a power to act, and then a power *not to have the power* to act: so that take it which way we will, it is still a self-destructive notion. Therefore the soul in a separate state must necessarily and incessantly act some action or other; and is only free as to the choice of its actions. This argument deserves our attention, and will, I presume, be found *decretory*.

“ yards downwards into the sea, not because he has a
 “ power to do the contrary action, which is to leaptwen-
 “ ty yards upwards, for that he cannot do; but he is
 “ therefore free, because he has a power to leap or not
 “ to leap. But if a greater force than his, either holds
 “ him fast, or tumbles him down, he is no longer free
 “ in that case; because the doing, or forbearance of
 “ that particular action, is no longer in his power.”

IX. But

IX. But to reason more mechanically with some; let us suppose that the soul might have the power not to act at all, at some times, and that activity implied this. In order to exercise this power, (if that were proper) or to suspend the exercise of all power, it ought to will not to act at all, for such a certain time. By what is said, N^o 5. it hath the power to act all this time; and though it might be easy to abstain from any particular action, for the time required, by doing other actions and so occupying its activity that way; yet, there being a pleasure to an active nature, to be some way busied, in thought or motion, it must be always on its guard against all action, that it do not unawares break out into the exercise of its activity, by doing some action or other. That is *it must be vigilant and active, lest it should be active, i. e.* it must will the doing no action, and that for the whole time supposed; which is again self-destructive, for *to will* is to act. If this were possible for the soul in a state of separation, why should it not be more possible for it in the present disadvantageous state of union? for there is nothing here said which our own experience doth not testify,

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when we are under no indisposition, or rather no great indisposition of body; and any person, on trial, may be familiarly convinced of it. What torture would it be to an infant, to keep it from stirring hand or foot? Nothing can stop the activity of the soul, but being clogged with an ill-disposed organ. When we are sick, or heavy with sleep, or fatigue, it becomes easy to abstain from action of the body, or mind; and only then. In the present incumbered state, we find it is as easy to *will* (which is the only proper action of the mind) as *not to will*, not to mention the necessity we are under; and there is a pleasure in reflection, variety, and changing the acts of the will, as we shall see when we come to examine the nature of consciousness; so that though it were in our power not to change the acts of the will, it would require an inconceivable care and solicitude (*i*). It
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(*i*) A man may at his leisure consider these several questions, which relate to this subject. By the exercise of what power is it that the soul could effect that it should not act at all? Is this the power of action, or of inaction? Is not inactive power a contradiction, or applicable only to dead matter? Doth it require but one act, or the continued exertion of this Power? Can a
being

is one of the hardest things in the world to keep the attention close to one object, without wandering, or varying the acts of the will, for as long time only as one could repeat a few sentences. If the greatest criminal were to have his life, on condition of thinking but on one thing for an hour together, he could not perform it. Wherefore, without more words, whatever necessity appeared for the *power alone* in N^o 5. is now to be ascribed to the *exercise of it*; all external impediments from body being removed. And since indefinient action infers indefinient perception, by N^o 4. it likewise appears, that the soul must be indefiniently percipient, living or sensible

being have power to effect that it should have no Power? (This question was determined in the last Section, when speaking of annihilation.) If this be possible in a state of separation, why not more possible in a state of Union? Would not the trial of this make a man solicitous to keep his mind in a state of inaction? Is not this solicitude itself a state both of action and perception? Is there any other way to perform this than by the indisposition of the body? Can it be said then that the mind performs it? How are we sure that the indisposition of the body does in fact perform this? Who ever surprized himself at any time, either asleep or awake, impercipient or in a state of pure inaction; or was sure he was, for the least possible time, in such a state? Of this last question we shall speak hereafter.

in a separate state. Any one (as hath been hinted) will find it equally impossible, if not more in the present state, to banish perception, as to banish action from his mind. Therefore we need no longer consider these as powers that can be separated from acts, or which subsist in a bare potentiality (*k*).

X. And

(*k*) An objection hath been raised against the whole reasoning in these nine paragraphs, in the following manner. It is allowed that the soul hath activity or power in itself, but at the same time it is pretended that it cannot *exercise* this power, or *put forth* any act, unless it be united to the body; or that the body gives it occasion to act and exert its power; and since it cannot act without this occasion given it, that therefore it depends on being united to the matter of the body as a condition *sine qua non*, though not as an *efficient cause*, in exerting any act.

This objection proceeds from not understanding, or at least not attending to the arguments I have adduced; however I shall bring the whole reasoning into a narrower compass, and add some things to remove this particular prejudice. And first, I say, it is an express contradiction that an active being should depend on a dead substance for the exerting its activity, so that it cannot *put forth* any act without it is first acted upon by that dead substance; *all action must certainly spring out of its own nature*. It may indeed depend upon the dead substance so far as that *limits, restrains, or hinders* its activity; and this is the way that dead matter really affects the

X. And lastly, which is very material: and I beg it may be attended to; it plainly follows

from the soul in their present union; the power of the soul is limited and confined to a certain *manner* of action, and *degree* of that manner; and the matter of the body is necessary to its acting in this confined manner and degree: But this very consideration shews us that its native power would be more unconfined, if such impediment and limitation were taken off; and I assert that no man can conceive it possible that the soul should depend upon dead matter for *promoting*, *advancing*, or *forwarding* the active power it is endued with. This argument in other words is, that a dead substance may be an *impeding cause* of the power of an active being, but can never be a *promoting* cause of it.

This argument is drawn from the natures of both substances considered in themselves, and apart; and therefore is the most proper to determine concerning them when separated: And it is certainly quite wrong to consider the disadvantageous appearance the soul makes in a state of union, and then to draw an argument concerning its power, when separate, from such disadvantageous appearance. To argue from experience in this case is, in some measure, equal to a begging the question; unless we had experience of both states: since union with, and separation from, a dead substance, must have quite opposite effects on a living being. Let me ask, Can the soul subsist at all, when separated from the body; Or doth active being require a dead substance to support it? The objection here supposes, I think, that the soul is only a certain sub-

from this reasoning all along, but more especially from what hath been said in N^o 7. that these

til aura, flatus, or some loose, unsubstantial thing that must be dissipated, when not kept together by the matter it is confined to. And yet it hath been proved that the soul is a *substance*, a *living substance*, a *simple and uncompound* substance (Sect. 2 and 3.) which cannot stand in need of a dead substance in order to subsist; and in this very question, we are arguing upon the supposition of its being actually separated. It would be to *allow* and *refuse* at once, to suppose it may subsist separately; and yet to raise an objection from another supposition that it cannot subsist separately.

If the soul then may subsist separately, let me farther ask what kind of a substance it is? A dead or a living, an active or a powerless substance? Or let this question be answered, what is the substance in which life and power inheres as a subject, in this state of union? I have shewn it is the soul or immaterial substance. After that let this be answered, whether separation from a dead substance will deprive a living, active substance of life and power? This would be to make their union only the *subject* of the power; or it is to make two powerless substances *beget* power between them. If then the soul has power when separated, as must be allowed; but cannot exert this power when separated from dead matter, as is said; it must have *power* without *ability*, which I look upon as a repugnancy in terms. And the objection proceeds upon supposing both sides of this contradiction true; for it allows the soul to have power, and yet asserts it wants ability; since it could never exert this power without the
concourse

these several conclusions are not only applicable to the soul in a state of separation from all

concurrence of dead matter. The distinction therefore in the objection, between a condition *sine quâ non*, and an efficient cause, is without ground ; a *power* to act, and yet an *inability* to act without the concurrence of dead matter, is the want of power to act without the concurrence of dead matter.

Besides, *life cannot consist in a mere power of living*, as I have shewn ; (see N^o 5.) it is something necessary. The soul therefore must have actual life when separated from dead matter ; or else it must be perfectly a dead substance. And if so, life belongs as much to dead matter in the state of union, as to it ; and two dead substances make up a living compound between them ; or their *union* is the only subject to which the property *life* belongs.

Now since the soul must have *actual life* in a state of separation, it must be actually and constantly *percipient*, *sensible*, or *awake* ; so that it doth not need to be acted upon by dead matter to stir up, excite, or awaken its activity. Which, I presume, is the chief mistake the objection proceeds upon. When it is said that the matter of the body, by acting on the soul, gives it occasion to exert its activity ; it is supposed that otherwise the soul would be in a state of insensibility, were it not roused, and excited to a sense of itself by something without ; but this is to forget that the soul must be always awake and percipient in its own nature, unless we would incur the contradiction just now mentioned. Thus it can never stand in need of an occasion given it in this sense, as if it stood in need of being awakened into life and perception by dead matter.

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all matter ; but equally applicable to it, and equally true concerning it, in a state of union with

If it be meant that the soul in a state of separation cannot act, for want of matter as a *subject* to act upon, or as an *instrument* to act withal ; this is still the contradiction of allowing it the *power*, and at the same time depriving it of the *ability*. If any reason once forces us to assign a power to it universally, and without condition, (as I conceive my arguments do) that cuts off all such pretences, or conditions, as would deprive it of this power again. But *both these pretences* are false in fact. For, first, the soul is active about its own perceptions, or it works with them, and reflects upon them, even here : and since it must be percipient in a state of separation, it must have perceptions to work with, and be active about. When we reason upon power, life, activity, perception, the soul is busied neither about matter, nor any affection that can belong to matter.

And, secondly, when the soul reflects upon its own perceptions even in this state of union, I ask *by what power it doth this?* Or *by the help of what instrument* doth it perform such an action? The law of dead matter is, *to continue in the same state it is in*. And if the soul made use of that *dead substance* in the act of reflexion, this could not be but by exercising a power over it, or exerting an act upon it. Let this be considered. And that is, *we are forced* to suppose the soul exerting a previous act of power upon dead matter, at the same time that we contend, it can exert no act of power but by the help of dead matter. Or, *we cannot suppose the soul acting by the help of dead matter, but by supposing it acting without*

with a body, or system of matter, that were subject to no disorder, or indisposition, never liable to be exhausted or run out, nor needed successive reparations, as our bodies in this

without the help of dead matter. This is a remarkable contradiction; it strikes at the root of our prejudices, and should for ever silence our objections.

This shews farther that the soul not only acts *without* the concurrence or instrumentality of dead matter, but directly *contrary* to it. The soul leaves off one action, begins another, changes the state of matter, and controls it all manner of ways. And it is a direct contradiction that a dead substance should concur, in any sense, to make a living being control and counter-act itself. Matter could not be supposed to be the instrument of this, without being supposed to be *first* over-ruled, controled, and counter-acted. That is, when we would suppose matter to be the necessary instrument of action to the soul, we must necessarily suppose action in the soul of which it cannot be the instrument: *i. e.* *Our supposition confutes itself.* And in truth, every action of the soul upon matter is a proof, that it acts without the help of that substance, and contrary to its nature. And this shews us that the actions of the soul spring out of the nature of the soul itself, as I asserted in the beginning of this Note. The inertia of matter once evinced, would be of great and universal use to us in this subject, if we would reason fairly from it. And if we will needs reason from appearances in a state of union to a state of separation, *this* that I have here insisted on, is a certain and undoubted matter of fact.

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present constitution do. Therefore, in these several particulars, we may substitute the supposition *of a state of union with such bodies*, when it shall please our infinitely wise Creator, that our immaterial part shall again commence union with matter, instead of the supposition of a state of separation from all matter.

XI. This was all I designed to have said concerning re-uniting our souls to systems of matter, by the power of an almighty Being. But some have objected, *that the account I have before given of matter directly impugns the truth I seem here to assert; for if matter be what I have represented it, it must be an inhabitable subject, utterly improper ever to be re-united with the soul, after it hath been once separated from it, in any other state of being, where the soul's happiness is to be increased, and rise to a much higher pitch than it enjoys at present; because matter in such circumstances can be good for nothing but to impede the operations of the mind, obstruct its action, and consequently lessen its pleasure and satisfactions.* On account of this difficulty, I beg leave to be a little more explicate, according to the principles before laid down.

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If *these* have given occasion to raise this objection, *they* will also help, I hope, to take it off. I did not think it could have been denied that our bodies might have a much more advantageous constitution than at present they have, nor that it could have been contended that matter, because unactive, was a subject *inhabile*, and *utterly improper* to be united to spirit on better terms. For first, if we will argue about *the whole sphere of possibility, the extent of Omnipotence*; it is plain that it can have no other limits than a contradiction in terms, or a self-destructive conception; and this is really *to be without limits*. If we would impartially apply this mark of possibility in our reasonings, we should not start so many difficulties about the possibility of the soul's being united to systems of matter, according to the purposes of infinite wisdom; or of these systems being vastly more advantageous, and the union with them more pleasant, than with our present bodies. What we see already performed, *viz. the creation of the substance of our souls, and of our bodies, out of nothing, and the actual union of these at present*, which cannot be denied to be facts, is every whit as inconceivable to us, and in truth much more so, than the

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uniting them together again when separated. And yet we make a difficulty of supposing a certain effect may be produced, tho' we must allow, that a much greater has been already produced. This is enough as to the possibility of our soul's being re-united to systems of matter (or the same systems of matter) of an equally advantageous constitution with the present, when it shall seem good to infinite Wisdom. As to the possibility of the constitution's being vastly bettered in a state of re-union, let us first reflect in general, that if the human soul could have reasoned on this point, before immaterial substance was united to a body of any constitution, how inconceivable this effect must have appeared to it. And when it had seen the effect performed in some *imperfect creatures, animals that only live in one sense, or two perhaps*, this low instance must have appeared to it the only possible constitution of a system of matter to which immaterial substance could have been united. And when it had seen this *difficult problem* solved to more advantage, and, if I may so say, by a *superior method*, in some of the perfecter sorts of creatures, it must still have been the effect actually produced, which could have given it a notion
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of the possibility of producing it. But this would have concluded nothing, according to the laws of good reasoning, concerning the limits of infinite Power, but only have proved the narrowness of its own conceptions: nor would it have been any argument against the endless variety of artifice it was afterwards to behold, in the curious mechanism of *insects*, *fishes*, *fowls*, *beasts*, and lastly of *man*, that it could not conceive any thing of this beforehand. And such a diversity of performing this controverted case (the same in the main with that in debate here) shews us that nothing is more absurd than to limit possibility by our manner of conceiving. We seem to have contracted some such notion concerning Omnipotence in bringing to pass effects now, as *Lucian* and the Poets give us concerning the superannuated power of *Saturn*; that in former times, and about the creation, it was perhaps good for something, but hath now lost its efficacy and vertue. However, as yet, I cannot help thinking that I have shewn, from the same account of the inactivity of matter, such a scene of things constantly performed by the same first creating Power, as in no respect yields to the raising up our
shattered

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shattered bodies from dust and corruption (1).
XII. But

(1) When we seriously reflect on what is only accidentally mentioned here, we may observe with concern, that men generally admit of a kind of *fabulous age* into their philosophy. All beyond a certain date is held conjectural. We see a regular vicissitude of things obtain : and this is all we allow as certain : How it was at first instituted, if ever it was instituted, or if it requires any power to maintain it, or if any power was manifested in the first production of things ; these are *points* that men think can only be decided by guessing. *Aristotle* and *Epicurus* have made the two leading guesses ; the one, that this constitution was *eternal* ; the other, that it was hit upon *by chance*. These we follow. And the natural powers of matter (activities of an inert substance) patch up the scheme. Surely reason, which discovers to us the nature of an *effect* from that of a *cause*, may let in light upon this conjectural period of philosophy. Reason was as much reason from eternity, as at this day. A contradiction that cannot obtain now, could not have obtained millions of ages ago. This is an everlasting standard. We may be as certain that there cannot be a self-existent effect ; that dead matter could not have determined its own location, figure, motion, quantity ; that power cannot be exerted but by a powerful Being, &c. We may be as certain, I say, of these points, as if we had existed from the beginning, and been *eye-witnesses* of all that ever happened. Nor is the power of that being, who first reared the Universe, and performed the first wonders, now grown old and decayed. I have endeavoured

XII. But to come nearer the difficulty: let us, on the one hand, consider the particular *disadvantages* we are under in the present constitution of our bodies, *from the inactivity of matter*, or otherwise; and call to mind, on the other hand, the several *conclusions* made above, *Seçt.* 2. The first disadvantage is that

to shew, that the foundations of nature would suddenly be loosened, and all things run instantly into horrible confusion, if a power equal to a constant creation, were not indefinitely exerted in supporting the order and frame of the world; (see the Note (x) N^o 11. & *alibi passim*, *Seçt.* 2.) Would we be convinced then that Omnipotence once was? Let us consider that it now is; now works; and is ever putting forth ineffable vertue and force through the whole fabrick. And should not this put an end to the fabulous age of philosophy? We need only run the consequence backward, and say, the present contradictions were always impossible. Nor, on the other side, can any thing hinder us from running the consequence forward into all futurity. Infinite power and perfection cannot be one day antiquated; nor ever cease to govern all things with excellent wisdom and goodness. The foundation of this is, that which is reason now, hath been so from eternity, and will be so for ever. And (to add one question more) into what shall we resolve this eternal indefeasible nature of reason and truth; but into the ideas of the supreme infinite Mind which must be infinitely or eternally true and reasonable?

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of moving our bodies from place to place. This, the foundation of which lies in the *inertia*, or resistance of matter, a property that it cannot be divested of, as it is a solid extended substance, is increased, partly by the quantity of matter in our bodies, and partly by their gravitation to the earth, their place of present habitation. Now we saw in that second section, that even in the present constitution of our bodies, all that we perform in spontaneous motion, is little more than exerting an act of the *will*; next to nothing abstracting from that act of volition, and as to the overcoming the inactivity of matter; since an indefinitely small part of the matter that is moved, is moved by the spontaneous mover, and all the rest is moved by the immediate power and impression of the *First Mover*. Nay we see that the whole *system of material nature* round us, and within us, is so curiously wrought and contrived, and so artfully put together, that upon the little which the human soul doth, a long series of motion often succeeds, as if we performed it all, by this single act of willing it only: and that *infinite Power* is not wearied, nor exhausted, nor perplexed, by being thus subservient to our *will*, or really to the spontaneity

taneity of *all living creatures*, in all places, and at all times. Nor can we think, but by forgetting what it is, that *such Power* could be wearied, or embarrassed, though the creatures, whose spontaneous motions are thus performed by it, were more numerous, (supposing all the other planets replenished with them, like this our earth, as is most probable; and all the fixed stars in the heavens to be suns with systems of such planets round them) and the motions of these creatures more nimble and frequent, and their acts of volition more quick. *Infinity of power* prevents all such difficulties. There is a necessity that *God* should be in all those far distant places, *intimately*, by his power and knowledge, as *here among us*: and we see it is so. Who drives round the planets themselves, those vast unweildy bulks of matter, in their immense orbits, with prodigious rapidity, and at the same time whirls them round on their own axes? From this consideration then, we may conceive it *at least possible* that the resistance of matter, that worst and most stubborn of all its properties, should cost us no trouble at all; and that the spontaneous motion of our bodies, or the motion
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of other bodies we were concerned with, should be performed, barely upon our willing it, in what direction, and with what celerity we willed it, according to our exigencies and desires; and that our moving, stopping, changing direction, should be as easy to us, as now it is simply to exert these several acts of volition, which we find it as easy to exert, as not to exert; being naturally performed in consequence of these volitions, by the subserviency of an *infinite motive Power*. Our seeing that it is so already, in a great degree, with respect to our present spontaneous motions, is a sure enough sign of the possibility of such a method; and that it is even consonant to the ways of infinite wisdom. The impression of gravitation, which answers great and necessary purposes, in our present condition, as hath been shewn, cementing us to this our earth, on which our business at present is, and wisely increasing the inactivity of our bodies, might be suspended; or receive a contrary direction; or become more intense in that contrary direction; which happening, would be but the *same instance of* infinite power, as at present. A greater degree of motive power might be communicated to the
human

human soul in an after-state, and that in any assignable proportion. And lastly, the quantity of matter in our bodies may, and in all probability will, be much less then ; of which immediately. Thus it is not only not impossible for infinite power, but not inconceivable to us, that the inactivity of matter, that quality of it that gives us most uneasiness in our present union, and is most unpromising in any union, should be as easy to us, as if we were not united to an unactive substance at all.

XIII. The next disadvantage we labour under, from the present constitution of our bodies is, that their systems of matter are in a constant change. Spontaneous and animal motions occasion a continual waste of certain parts of matter, and myriads of particles are continually flying off from all parts of our bodies, or successively *excerned* from them : this loss we are obliged carefully to make up with new additions of proper matter, which forces the body into *fits* of indisposition, *intervals* of rest and sleep, that this newly thrown in matter may be wrought up in a proper form, and disposed to succeed in the
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room of that which is thus cast out. Also constant supplies of fresh air are necessary for the uses of respiration, and to maintain the lamp of life. But let me ask (which is the material question here) *by whose power and contrivance is it*, that matter hath at all this quality to make up the losses in our bodies by a constant succession and change? Or by whose institution is it, that the air is *thus useful*? That there is such a *treasure and magazine* of it prepared? Or that it should be purified, and made useful a-new, when disabled, defiled? If the *Sceptic* can make it appear, that matter hath in itself certain eternal and necessary qualities, independent of any other being; which therefore the Being who instituted the present animal œconomy, was obliged to make use of, as he found them, and as best he could, applying one thing to one purpose, and another to another, as their eternal and necessary natures would allow, not having an absolute power over the materials he wrought with; then I shall be *silent*. But if the contrary of this account may be supposed without a contradiction; if the contrary of it hath been proved; and eternal matter with necessary powers
shewn

shewn itself to be *the greatest contradiction*; where will the remaining difficulty lye? This whole affair, how dark and abstruse soever, may, I conceive, with submission, be yet reduced to this plain and familiar state: Whether the same quality, (energy, power, or vertue, if we please now metaphorically to ascribe these to matter) may be continued, or preserved, in any individual particle, or quantity of matter, by that *same Power* which first endued it with that quality; this power being *indefinitely great*? If this can be allowed, and I think it will amount to a contradiction not to allow it; then even we may conceive it feasible, or possible, (and that is all that is contended for) that the constitution of our bodies may be such in an after-state, that there shall be no change of matter in them; or that the same individual matter shall always serve to the same purposes: since, after the nature of matter is discovered to be what it is, as in that second section, it is not conceivable to us, that such an unactive substance should, by the constant succession of it, *recruit* our bodies, unless it were by the immediate indefinient power of the First Being, impressed upon it. It must undoubtedly ap-

pear to us men, easier to preserve a thing in the same state, and with the same qualities, be they what they will, than by an uninterrupted application of power, to effect an indefinite change of state and properties in it. What is it but an *arbitrary* and *unsupported* assertion, when the Sceptic affirms that the present constitution of body is the only one that could be; the only one which an infinitely wise *Cause* could contrive, or an *infinitely powerful one* execute? He hath no knowledge of this part of nature, beyond a few observations of matters of fact, *gleaned up* from the constitution that now obtains. Nor can he retort this argument, by saying we cannot shew that infinite Power can do this. Let him consider that it is an easy thing to argue on the side of infinite Power; and how unwisely he takes the other side of the question; and defends the living powers of dead matter. As hath been observed before, the present constitution of our bodies seems both more *operose* and *costly*, in respect of pains and of materials, as designed to shew us the perfections of the *Author* of it. Now if the present œconomy were antiquated and laid aside, and another law ob-
tained;

tained; if either reparations were not necessary to be made, or if necessary, yet as necessarily and incessantly made, as the wastes were that occasioned them, and as much without any act or consciousness of ours, as now the circulation, respiration, and all the rest of the animal œconomy, is performed without our knowledge, or participation, (which surely is a thing conceivable enough, from the *incessant operation* of God shewn above, through all the parts of matter) if we were surrounded with, and constantly breathed, such an enlivening element, as would be literally, and to all purposes, an *aura vitalis*; all the train of bodily evils, arising from the present constitution of our systems of matter, weariness, weakness, want, old age, disease, pain, would disappear for ever. Our souls, which are, in the present constitution of the body, under a necessity of being still active and percipient, when the disorder of it doth not distress and overpower their active nature, would be then always under that *pleasant necessity*: our time, and thoughts, and application, which are now engrossed by the back and belly, and a thousand racking cares and disquietudes in providing for these,

would be then wholly ours, to bestow upon rational acquisitions, and the pursuit of unfading pleasures. In short, as certain as it is that we cannot be other than miserable, under the present constitution of our body, (as shall be made appear) so certain is it, that this change will free us from all that load of pain and affliction, not only in our body, but in our minds, and bring us up to that state of *indolence*, which shall be explained below. And this is all indeed, I conceive, that can be expected on the part of matter : the rest of our happiness, true and *unallayed* pleasure, must consist in the gratifications of the rational nature, and be solely felt in our immaterial part. But is not this enough ; is it not a *wonderful instance* of power, that we shall be as easy and free in our fellowship with unactive substance, as spirits quite disengaged from it !

IV. Again, we may say, I think, without incurring any inconvenient consequences, that when the bodies of rational beings are designed for *other climates* of the universe, than such a gross part as we reside in at present, a small quantity of that bulk of matter
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that now composes them, will serve for corporeal systems in those *finer regions*. For it is the identity of consciousness, not of material parts, that constitutes the same conscious or rational being. Since then it appears by what hath been said in that second section, that the *attraction of cohesion*, whereby the parts (of all the parts) of our bodies stick together, is the immediate effect of the *First Cause*; if it shall so seem good to his infinite and unerring wisdom, that this attraction should be more intense in those finer systems, these parts would thus become fixt and permanent, and all change, waste, and consequently reparation, be prevented. And by this way of conceiving it also, we come again to a possibility of the same effect: in which way of conceiving, no inconsistency can be alledged, unless by asserting the point in dispute, that any disposition whatever, differing from the present animal œconomy, *is impossible*. And the advantages of this change would be the same that were just now enumerated. The resisting part of our composition would thus *be lessened*: such bodies would not at all be cumbersome, but obsequious and easy; still numerically *the same*,

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and *ours* with propriety ; and as little liable to the inconvenience arising from being made up of parts, as pure spiritual substance itself. Whence, in a particular manner, appears their folly, who, to prove the soul mortal, think it enough if it were shewn *material* : for if other difficulties would allow the soul to be at all material, this would be no hindrance ; as hath often before been said. Whence also it appears that an objection started by modern Free-thinkers on this subject, is either a wilful mistake, or made thro' much inadvertency : namely, That if all the men that ever lived on the earth, were to have bodies given them at one time, there would be a deficiency of matter to furnish out so many corporeal systems ; and that if these bodies were to be transported to a purer, finer æther, they would not be able to subsist for any time (*m*). This is *poor* indeed for *philosophers* ! The meanest among the people have more refined notions, than to imagine that we should eat, drink, and do the same things in an *after-state*, as now ; or that the mass of blood should be as liable to fevers there, as here after a debauch ! These men

(*m*) See a late Book, *The adventures of Jacques Massie*,
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tie down infinite power to their own way of *misconceiving* things; and then assert the impossibility of their own imaginations. It hath been demonstrated by an unexceptionable hand, that a very moderate quantity of matter might fill the whole sphere of *Saturn*, and not leave a vacuity above that of an assigned diameter (*n*).

XV. The last disadvantage the soul labours under, from the present constitution of the body, is that it perceives external things but *a few ways*, and by a few inlets, or passages of the body: but what hath been already said may be easily applied here. It is no better argument against the possibility of more ways of perceiving external objects than *five*, because there are but five, than it would have been against the possibility of more than *one* or *two*, if there had been but one or two; or because some creatures may have but one or two. If an animal body had been contrived which should have been all over one common sensory to the mind lodged within; none would have excepted against the possibility of such a body: and it is no argument against

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the possibility of it, that such a body hath
not actually been made, unless an inconsis-
tency in the thing itself could be shewn (o).
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(o) It may perhaps be the more easily conceived, that the body may be all over one common sensory to the soul, if we consider that the body, in its present constitution, *limits* and *confines* the perceptions of the soul, but no way effects them. The fabrick of the eye is indeed wonderful, and by it this mechanical (or rather optical) problem is performed, that a living percipient *Being*, confined to a *dark* and *close* place, is apprized of what exists, and is done without, and at a distance. But this must be performed by communicating motion from those *distant objects* to that *percipient Being*. A material organ, however artificially contrived, could conduce no other way to the perception of a *living Being*, than by communicating the motion it receives. It must be the percipient *being* itself, that perceives these communicated motions, by virtue of its own *perceptive faculty*; and since it is *percipient* in itself, and *confined* to a dark and close place, we must of consequence conceive its *perceptions* to be *likewise confined*; and that the eye only permits them on one side, by communicating motion only from one place; and therefore that on all other parts they are hindered, or the motions are intercepted. How much is it then that the eye performs here? Thus much only, I suppose; it *limits* and *confines* the perceptions of the soul to a narrow space, as a *hole* in a window shutter, *limits* and *confines* the entrance of the *rays* of light. We saw before, *that all action must spring out of the nature of the active Being itself*, (see the Note (k) N^o 9.) and
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Some insects have whole clusters of eyes, when their exigencies require *more than two*; and

it is no less certain here, *that all perception must spring out of its own nature, or belong to it.* It is true, it may be said, that the *eye* modifies the motion which it communicates; and thus conduces to the perception of the soul. But if there were no percipient Being *within*, the motion, however modified, would not be *perceived*: and to make the perception of the soul *depend* on the *modification* of mechanical motion, or *owing* to that, is still to incur the contradiction of *two powerless substances*, &c. And, secondly, though the rays of light are made to *converge*, and form an *image* in the bottom of the eye, the eye it self is as little active in doing this, as the hand or foot is. It is *another Being* that performs the motion, and the *soul itself* perceives the *image* or the motion excited by it. And if the *soul* perceives the images, or *pictures* of objects, it may as easily perceive the *originals*, or objects themselves. There would be no necessity of a *lens* in the hole of the shutter, when the room is darkened, to form the *images* on the opposite wall, if the rays from the objects could enter in their natural order: and it requires no more *art*, nor a greater *perceptive capacity* in the soul to perceive the external objects, at first hand, than to perceive these *images* on the wall. Just so; the reason why this artifice in the eye (which is the great, original *camera obscura*) and these images on the *retina* are necessary, is because the soul is *confined*, and in a *dark room*; and the same visive faculty which perceives the *copies* or pictures there, must as easily perceive the originals. It is still but perception of *figure*, in the one case as in the other.

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and some creatures can thrust out their eyes to a distance from their head: and there is

variety

The confinement of the soul therefore to a dark room, makes all this art and address necessary; and yet we infer from thence, that the soul could not perceive external material objects at all, unless it were thus confined, and still carried a kind of *camera obscura* about with it, and surrounding it! And if this is the art to make confinement and darkness consistent with perception of external objects; nothing can be more preposterous and unreasonable, than to imagine from thence, that darkness and confinement *are necessary to the perception of these*; or rather, that this *darkness*, this *confinement*, and this *art*, are the things which *effect* perception in the soul. And I am sure they imagine thus who tell us so often, *Quinque ut opinor eam faciendum est sensibus auctam*. The perception of a living *Being* cannot be owing to limitation and confinement, nor depend on the helps that are necessary, when it is thus shut up and limited. No man can maintain this, without being soon reduced to grievous contradictions; agreeably to what has been said before.

Hence therefore, as was asserted, the eye only limits the perception of the soul, or permits it on one side, by communicating motion only from one hand. And the reasoning is the same with respect to *the other organs of sense*; they only convey the motions of which the soul is percipient; but for wise reasons these motions are impeded, except only through these *avenues*. And thus they bound in the natural perceptivity of the soul, otherwise extensive and unconfined. Hence the *material organs* are (as the word imports) the instruments only for
limiting

variety enough exhibited in disposing the *other* senses, in the several species of animals, to

let limiting a *certain manner* of perception, or confining that manner to a *particular degree*, that it be not more extensive than suits our present condition; but are not *the causes* of that perception in the soul. The right disposition of the medium, and the due distance of the object, are also necessary to perception, which nevertheless are not causes of that perception. So the bad disposition of the *humours* and *coats* of the eye may hinder perception; though their right disposition be not the cause of it; in the first case *the limitation is total*, and in the last some part is removed. Now since each organ is the instrument only for limiting a *certain manner* of perception, or confining that manner to a *particular degree*; we are to say, That the soul hath the capacity of perceiving in that manner, *not because* such an organ is the instrument; but that such an organ is made the instrument to limit that manner of perception to a *particular degree*, because the soul hath the capacity previously in its own nature without limitation. And indeed it is not to be supposed, if there were an eye placed on the back-part of the head, which might communicate motion from objects behind, that the soul would not see these objects likewise, as it perceives those before us. This would be (if I may so express it) to fancy the soul blind on that side. Whatever reason there is that it should be percipient of motion coming from one part; the same there will be for its being percipient of motion coming from any other part and really from all parts round. And I have immediately shewn, that the particular modifications of the motion,

let us see that the *great Contriver* was not straitned; and that there were more ways of *solving*

tion, are but the *art* necessary to it as being confined; for we should still incur the contradiction, which I have endeavoured to explode in the beginning of this section, that two dead substances might rise to life by being united; if we allowed that the motion of dead matter, howsoever modified, might endue the soul with a perceptive capacity of any objects, whether placed before, or behind us.

Therefore I conclude universally, with respect to external objects, and the functions of the senses, that the perceptivity of the soul is confined by the organs of sense and no way *effected* by them; or (if this way of expressing it be thought not so accurate) that the organs of sense take off some of that limitation from the perceptivity of the soul, which would be otherwise universal; and that the modification of the motion is necessary, not upon the account of the *perception*, but upon the account of the *confinement*. As more art is required, where the difficulty in the performance is greater. And, lest any should think this a partial account of this affair; let us suppose a man suddenly deprived of *hearing, seeing, feeling, &c.* or the organs to be disabled; and let us consider the state of the soul in these circumstances. Lastly, let us suppose that all the *avenues* of the senses were *opened* again: In the first case there is a *total limitation*, and in the second, a part of that limitation is removed: but the soul itself is neither deprived of its perceptive capacity in the one, nor endued with it anew in the other; that remains inherent in the soul itself.

Now

when separated from the body. 301

solving the problem (as I said above) than one.
In our present condition, we have ways of
applying

Now to apply this to the main subject of the section, or to the soul in a state of separation. This cannot be reflected on but with much pleasure, I think; and we may now speak with more assurance of the *enlarged life* which the soul shall have when separated from the body. For, since it is contradictory that its perception should be effected by the modification of motion, as communicated by material organs; it is even inconceivable that a prodigious limitation should not be taken off from it, when freed from the confinement of these organs. So unphilosophical is *Lucretius's* objection, that the soul could not perceive *material objects*, but by the help of *material organs*; i. e. could not perceive matter, but by the help of matter! And now if we consider perception by organs in this view, the wonder will be, not that the soul is endued with perception, by the mechanism of the eyes, ears, &c. which hath hitherto been the general prejudice in considering this instance of the *Creator's* power, and is indeed contradictory; but that the otherwise not bounded perceptivity of the soul, should at all be made consistent with, or actual perception in any degree be preserved, in the union and application of dead matter to the soul. We carry over our wonder to the impossible side, and think nothing worth admiring unless an impossibility is wrought. Though this is only one particular instance of our general prejudice in considering the several parts of nature, where all efficiency is ascribed by us to natural activities and powers of a sluggish substance.

Farther,

applying to all the qualities of objects, that our necessities require; and without all doubt

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Farther, since the perceptions of the soul are limited and confined by the organs of sense, but no way effected by them; what is said here thus at length falls in with what was said in the Note (*k*) N^o 9. or the present argument becomes the second part of the *argument* insisted on there. We saw there, that it was contradictory to say *the matter of the body is the instrument of action to the soul, or that the soul could not be active without it*; because we were forced to suppose the soul exerting a previous act of power upon dead matter, at the same time that we contended, that it could exert no act of power but by the help of dead matter; or we could not conceive the soul acting by the instrumentality of matter, but by conceiving it acting without the instrumentality of matter. And here the matter of the body is as little the instrument of *perception*, as there it was of *action*; for we cannot conceive the soul percipient by the instrumentality, or help of that matter, but by conceiving it percipient previously in its own nature, and without the help of such matter. When it perceives itself *affected*, it doth not borrow *this perception* from the thing affecting it, by the very terms and conception: *perception* springs as much out of the nature of the soul, as *action*. And, as has been said above, we cannot conceive perceptivity, or life to consist in the mere capacity or power of living; in this we are necessary; otherwise the living Being must be dead to all purposes. Read again the end of N^o 6.

And finally, since the body limits and confines the perceptivity of the soul, we may conceive that it might

limit

we shall have ways of applying to all the qualities of objects, that our future happiness and pleasure demand. We have *reason*, that superior faculty of the soul, which no avenue of the body could *let in* upon it; whereby we discover truth, and grow acquainted with limit that perceptivity *less* and *less*, till at length it became all over one common sensory to the soul; or admitted the motions from external objects all manner of ways. *For admitting, or communicating motion from external objects, is all that ought to be understood by a sensory.* And since we see some insects have whole clusters of eyes, as I mention above; and that one of the senses is at present diffused all over the body, namely *feeling*; these instances shew this to be neither impossible nor inconceivable.

I cannot put an end to this Note without adding what a learned and ingenious Friend has farther observed on this subject, *viz.* That it may be one reason among others, why the body thus limits and confines the perceptivity of the soul in the present state, that there might not be a confusion of objects all acting on the soul at once, and a hurry and indistinctness in the attention; as when a person has more things to dispatch than he can well look to: And that this may likewise be one reason why all our past thoughts and consciousness, are not in view at the same time; though they may be recollected in a great measure when occasion requires: But that however, in a state of separation, when the *activity* of the soul is freed from all impediments, its *perceptivity* will also be without confinement from material organs; and both will be in proportion then, as they are now.

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the *abstract* natures of things themselves, which consist solely in idea, and are not properly objects that can enter by material organs. This faculty may admit of greater improvements and heightnings (as shall be observed in another place) than we can conceive our corporeal systems to be capable of.

XVI. But it has been said, which is the chief part of the objection, that it must be a punishment to spirits, once separated, to enter again into systems of such matter, howsoever disposed; and that this is inconsistent with the design of making good men happier, in that state of re-union. But I answer, that this can be no punishment, nor diminution of the happiness designed them, if we conceive it within the reach of *infinite Power*, to bring this union to a state of *indolence* or inoffensiveness, on the part of matter (as I have endeavoured to shew, in these last paragraphs, it is) for to have no trouble, or uneasiness at all from matter, is precisely the state of happiness, with respect to it, that spirits have, which are entirely free from it. And if we go over to the *other side*, and say there is a *positive* and real happiness in being joined to matter,

matter, it would follow that the happiest spirits ought to be in a state of union with it. But sure no attentive man ever thought that there consisted any real felicity in being united to material substance. A paradise of the pleasures of sense is very gross philosophy. It is enough that it shall give us no impediment, let, or restraint; the inactivity of it being *corrected* by an *infinite motive power*; and the fixedness of it rendering it as little inconvenient, from being made up of parts, as if it were pure spiritual substance; and that it shall leave all other happiness, rational and true pleasures, as accessible to us, and as endlessly increasible, as if we were not at all concerned with it. Thus, *infinite power intervening*, our being united to, or separated from matter, appears a thing indifferent, either as to the degree, or kind of our happiness. It is true, we are subjected to a great *superplus* of pain and trouble, from the present constitution of our bodies, on the most advantageous supposition we can make; *wisely*, to shew us that happiness is not to be expected here, nor at all from the gratifications of sense; and again, we are made capable of rational pleasure which cannot be finished, or even well begun

in this period; for the same reason. For *rational pleasure* is such that we might say, the Author of our beings was not infinitely rational, if ever it were to have an end. Upon this and other accounts, I shall afterward enquire as exactly as I am capable, into the nature and extent of these two different kinds of pleasure, sensual and rational. But to return from this digression, to where we left off at N^o 9. concerning the indefinient activity of the soul in a state of separation.

XVII. It will possibly be said, that though it may be easily conceived that the human soul should be *incessantly percipient* of something or other, yet it seems hard to imagine that it should be *incessantly active*; that if it is only active by *willing*, and only *wills*, when it turns its perceptivity from the consideration of one object to another, it must at that rate be incessantly shifting the objects of its contemplation; and for it to dwell on the consideration of any one, for any time, would be impossible: that we have experience, even when the body is best disposed, of its being merely passive, and percipient only of objects offered to it, without its own activity exerted
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in turning to them ; and that this incessant action would be more a *fatigue*, or rather *torture* to it, than any thing else, giving it, as it were, a *vertigo*, in continually whirling from object to object. But in answer to this, it is to be observed, that the soul is not only active, when first it applies itself to the consideration of any object ; but incessantly active, all the time it is considering that object. The applying the perceptivity to it, is the change of action, the end of one, and the beginning of another ; but the continued application to it, is that action continued, or the first act of willing still kept up. For, since to will is to act ; to continue the will, is to continue the action ; and to will without intermission, is to act without intermission. Give me leave to illustrate this, by a familiar comparison. When a man takes first hold of any thing, a piece of *iron*, v. g. with a pair of tongs or pincers, he acts, or begins an action ; but the action is continued, all the time he holds the iron, be it as long as it will, till he quits this hold for another, or this piece of iron for another. And though he should do nothing but hold it ; yet he doth something when he holds it, *by the terms* : he continues the

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action.

action. Which ever way it be that the soul affects the body, when first he takes the hold, it continues still to affect it the same way, all the time till he lets it go. The animal spirits, which are, probably, the immediate ministers of the will, crowd incessantly into the same parts, and there is incessantly the same tumefaction, or contraction of the muscles, which are the instruments of this action, as at first. The matter is not much different in thinking : to keep an object under consideration, is the same thing as a constant attention, or application of the perceptive faculty to it ; and this is effected by *constant willing*. Just as looking stedfastly upon one point, requires a constant direction of the *axes of vision* to that point ; which must be effected by constantly exerting that power, which the soul hath over the motion of these axes. When we are sick, or have a head-ach, it is with pain we can perform this for any time, which shews it to be action. The property of matter, whereby it continues in that state into which it is once put, proceeding from its want of power to work a change, is by no means applicable here ; and it is our prejudice, to call the *transition* only of the perceptive capacity, from one object

object to another action. We are indeed so accustomed to feel difficulty in action, when we act by the body, that if an action costs us no trouble in performing it, or produces no sensible change in matter, we lose the notion of our being active, and *the distinction* we have formed to ourselves between *action* and *inaction*. When we move a limb of the body spontaneously, it is confessedly action; motion is a sensible change: but it is no less action to hold the arm straight out, than to put it at first into that posture, which we may be sensible of, because we soon find ourselves unable to continue it thus (*p*); and that is no sign of *inaction*. And agreeable to this, a close attention of thought to the same thing, is more fatiguing than frequent changing; there being, as was said above, a relief and pleasure in variety of objects. So far is it from be-

(*p*) *Hoc [tremorem induci, ob defectum succi spirituos:] confirmatur ex eo, quod viri alioquin robusti, pondus proprii brachii extensi sustinere non possunt, continuatâ actione [here it is called action] per horam integram, absque tremore. Quia nempe, ob continuatam effusionem ex iisdem nervis, succi spirituos dissipantur, et deficiunt, et proinde, interruptis vicibus, & minutis stillicidiis exprimi possunt. [In which intervals the arm must yield and sink down a little.] Borrell. de mot. animal. Part. 2. Prop. 216.*

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ing true, that changing the acts of the *will* is only action. And this is one reason that *history*, *poesy*, &c. are more entertaining, to those who have not acquired a steadiness of attention, than mathematical and abstract reasoning. This shews us that the soul is active and busy, in the stillest intervals of musing and thinking: and as we have seen in N^o 4. that action necessarily implies perception; so in this case, perception naturally infers action: that is, though perception doth not necessarily imply action; yet it is here a natural sign of it. When we fall heavy with sleep, or sink from a waking to a sleeping state, we lose gradually the perception of external objects, or whatever we were thinking of, as the mind ceases to be active in applying the attention to them; till all degenerates into an *internal scene* of thinking, where the mind is still active and perceptive of, and about other objects.

We may further observe, that if thinking were not action, a man might run a race, and study a hard theorem at once; for that would be only to run, and do nothing else. It partly proceeds from the simplicity of the attention, of which hereafter; and partly from

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from the limitedness of the active power of the soul, that it can do, or be intent upon one thing only at a time ; and if thinking were doing nothing, the doing any thing else would not exclude it. And as this helps to shew us, that thinking is action, in whatever degree of intenseness ; so it assists us, in some manner, to get a transient glance of the boundless, adorable power and perfections of the *Deity*, who performs an infinity of actions, infinitely different, all at once, in all places, without perturbation or perplexity. We have scarce any other way of seeing the greatness of his perfections, but by bringing them into comparison with what *is difficult to us*. When they become great beyond a certain pitch, we lose the sense of their greatness ; and, if I may so say, *by still increasing they become less to us*.

XVIII. To confirm farther the incessant activity of the soul considered in its own nature, we may next observe that as all *willing* is action, so this *willing* is the only action of the human soul ; or all that it doth when it acts, is only exerting an act of volition. When it moves the animal spirits, in order

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to move any part of the body, it only *wills* the motion. It knows neither why the motion is performed, or how it is performed; but if the body be rightly disposed, it will be performed, in consequence of its volition. In like manner in its own internal operations of thought and reasoning, it performs no other kind of action but *willing*; for it is necessary in seeing the identity or diversity of its own ideas, after the will hath applied the perceptivity to them; as shall be shewn. No *agent* indeed can act, without *willing* the action; but the difference to be taken notice of here is, that the human soul in particular, only *wills* the action, and is forced to depend upon a *borrowed power* for the execution of what it *wills*. The system of nature round it, as was said, is so wonderfully contrived, that the execution of its *will* is performed, blindly as to it. And it is difficult to say, whether this is a greater mark of the wisdom of the Contriver, and of its dependence upon him; or of his goodness and condescension, in being subservient to the will and spontaneity of his creatures. But *willing* is a thing that costs us no pains; it is full as easy to us *to will a thing*, though the effect-

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ing it might not be in our power, as *not to will it*: though there may be an inequality in the disposition of our bodies at different times, there is none in the *power of willing*. And when it is freed from this inequality, as it will be in a state of separation, or in a state of union with a system of matter liable to no disorder, *action* in all respects, will be as easy to it as *inaction*; since its own proper action, even here, is as easy. Let us call to mind a little, that it is a repugnancy in thought, to suppose an active substance feeling any difficulty from itself in acting. It must be *something inactive* that gives it any uneasiness to act; that is, some dead substance. If it felt uneasiness from itself, it must be from *some part* of it, that wanted to be actuated; that is, some *inactive* part; that is, some part not of active substance (for of such parts active substance could never be made up); and that is, some part *not of itself*.

XIX. Let us reflect *how necessarily we become active and percipient again* (of external objects, I mean) *after sleep*. It is as little in a man's power to continue sleeping at pleasure,

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sure, as it is to fall asleep when he lifts; tho' his life depended on it. This would be a great happiness in many cases, and a *singular privilege*. Certainly it is not the right order and disposition of the body, that thus *forcibly* restores action and perceptivity to us; for then we should need no other principle to actuate and enliven us at any time; but the order of dead parts would make them living and rational (*wise, learned, and laughing*, in *Lucretius's* phrase); and the effect would be perfecter than the cause, not only in degree, but in kind; which would put an end to all reasoning, (of which by and by). This therefore can proceed from nothing but the nature of the soul itself, which is necessarily active and perceptive in itself, and *sheds* life and perception (so to speak) through *the body*, when the right disposition of that returns. The soul in sleep seems to suffer something like what happens to a *live-coal*, covered up under the ashes; which is alive all the while, but only appears so, when disencumbered, and exposed to open air. As the coal would at any time discover itself, and kindle up any combustible matter applied to it; so the soul necessarily enlivens a rightly disposed body.

We

We cannot suppose it like a dead cinder: for as that, of itself, could never become a live-coal again; so neither could the soul recover life and action, of itself, if it were, for any the smallest time, in a state analagous to that of a *dead cinder*.

XX. We may conceive, I think, without much stress to the imagination, that when two substances of contrary natures, an *active* and *inactive* one, are joined together in a state of union, they should so affect each other, that the whole compound should not appear perfectly dead, nor perfectly living; which is the very appearance we make: and that, as the one or the other principle prevailed, the compound should seem to partake of that nature. This is not hard in general to conceive; though the formal method how they affect each other may not be conceivable by us. It is certain enough, from what is said in the second section above, that gravity, or elasticity, by which a *clock* or a *watch* goes, is the action of an immaterial substance upon matter. We can as little conceive the formal manner of this impulse or impression, as how the soul affects the matter of the body,

or ,

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or is affected by it. This very common instance *includes in itself really* all the difficulty that is in the mutual action of matter and spirit on each other. Yet because a man cannot conceive how it is, that an immaterial impulse constantly impressed should make a watch go, this would not make him deny the evidence of truth, or say, that either it doth not go, or goes without any power. And, to pursue this a little farther, if we conceive *this force* much superior to the *inertness*, or *friction* of the matter to be moved, the machine will go easy and lightly; if it is but little stronger, that will be moved slowly and with difficulty; but if it is only barely equal, there will be an *equilibrium*, and all the movements will stop; and *if it is inferior*, the machine, so to express it, is *more dead*. Now, if instead of supposing the force different, we suppose the disposition of the parts to be moved, different at different times, the same constant force remaining and acting; all the same different appearances will happen: the machine will seem brisk and lively; faint and languid; sick, or quite dead, (to speak metaphorically); as the indisposition of the parts balances the active force more or less.

Com-

Comparisons do not hit in all particulars: yet it is not difficult to apply this to the case of the body as actuated by the soul; nor is there any considering person, I think, who may not see from this instance (in some manner parallel) how frivolous those objections are, which the Sceptic brings from the inequalities observable in the body, to prove the soul material. For though it may be said, that the *force* which moves the limbs doth not belong to the soul, as hath been shewn before; yet that need be no objection to the comparison: for the disorder of the parts certainly hinders that force from being exerted, and the command of the soul over the body to appear; since it hath likewise been shewn, that *this force* is subservient to the *spontaneous mover*; and therefore in the present case may be considered as its own force.

XXI. From the soul's necessarily actuating the body, either during its being rightly disposed, or as soon as the indisposition of it is rectified, it farther appears, that the *law of their union* is such, that only a final ineptitude of the body to be actuated, can separate them:

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them : for they still continue united, notwithstanding any indisposition which can be rectified. And therefore the soul is not at liberty to act by itself, before that *final ineptitude* or disorder happens. We need not wonder why the soul doth not act by itself, when the body is not fit to be actuated by it : it hath no liberty but what is indulged it, by the *Being* who appointed this *union* ; and if it had such a liberty, the union would be in vain. The soul would always chuse to act by itself, retiring from the body while it were indisposed, that it might enjoy a separate and unpainful state of existence. And since the body, in its present constitution, must always give the soul some uneasiness, less or more ; as also since, when best disposed, it must retard its application to many objects ; the consequence would be, that it would never chuse to actuate it, or to act by it, more than a man at liberty would chuse to walk with fetters on his legs. A little taste of separate existence would put men upon all expedients of dissolving the union violently. Thus such a liberty would have been abundantly inconsistent with the design of uniting them together. It is rather wisely in-

stituted, that we naturally seek to prolong the union, that it may appear how we approve ourselves, in this our state of *novitiate*. I might mention here another kind of inconveniencies that would ensue from this power indulged to the soul, to the overturning of human society: if we consider the *lust*, *avarice*, *revenge*, &c. of mortals, who would thus come to know more perfectly the means of accomplishing all their bad designs. No method of security would be safe, or secret; nor any method of ruin unknown to the utter confusion of the world. How much better is it then that it should be otherwise ordered! It is true, in sleep the soul acts, and is acted upon, by a different method from the ministry of the senses; but it is all the while in the body, and not trusted to its own discretion.

But this whole appearance of dreams shall be considered at large a little farther on. In the mean time, I cannot help being concerned to find some great and learned men taking the *wrong side* of ambiguous appearances, and falling in with the sceptical notions of the world, by insinuating *that the soul owes the perfection of rational thinking to the body*; and this in order to maintain another

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other *hypothesis* of no very great consequence in itself, tho' it were true in this state of union, *viz. that the soul thinks not always (q)*; which yet is not easily to be proved, even though the

(q) *Essay concerning human understanding*, B. 2. ch. 1. sect. 16. " 'Tis true, we have sometimes instances
 " of perception, whilst we are asleep and retain the me-
 " mory of those thoughts; but how extravagant and in-
 " coherent they are for the most part; how little con-
 " formable to the perfection and order of a rational be-
 " ing, those who are acquainted with dreams need not
 " be told. This I would willingly be satisfied in, whe-
 " ther the soul, when it thinks thus apart, and as it
 " were separate from the body, acts less rationally than
 " when conjointly with it, or not; if its separate thought
 " be less rational, then *these men* must say, *that the soul*
 " *owes the perfection of rational thinking to the body*; if
 " it does not, 'tis a wonder that our dreams should be,
 " for the most part, so frivolous and irrational; and that
 " the soul should retain none of its more rational so-
 " liloquies and meditations." We shall afterward see,
who in this place ascribes the perfection of rational
 thinking to the body; however here is a broad hint for
 material souls. What is *for the most part only*, is not
always: that side ought to have been considered also. I
 hope it will appear, that the most incoherent of our dreams
 is an appearance far above matter, or any power matter
 can be endued with: and that, upon a narrow examina-
 tion, the actions properly of the soul, in dreaming, will
 not be found so irrational, as is here presumed, and ge-
 nerally conceived.

activity of *spirit* be clogged with dead matter, and is certainly false in a state of separation. That I may not be misunderstood, I do not mean that any man *should lie for the sake of truth*, (truth stands in need of no such help, but rejects it;) nor that one should avoid any difficulty, or not consider all sides of any *appearance* : but what I complain of is, *the not considering* all sides of any appearance from which a weighty inference seems to be drawn, especially if it be perplext in itself; as the appearance of dreams certainly is. If the soul were indebted to matter for the perfection of rational thinking, matter would be the perfecter *being* of the two; which it would be absurd to suppose: and if thinking, or *activity* (and that the highest kind of activity) doth not belong to the nature of immaterial substance, it must be *merely accidental* to all substance; which is no less absurd. This last I have shewn false in what is said before (N^o 3.) And an endeavour to remove the pretence which our dreams may give for suggesting, that the soul owes the perfection of rational thinking to matter, together with some other reasons to be mentioned hereafter,

will, I hope, plead my excuse for offering an *essay* on that intricate subject.

XXII. We may farther observe, the first nine paragraphs of this section being duly considered, that they who placed the essence of the soul in thinking, rather expressed their meaning unwarily, than had false conceptions of the nature of it. If essence and existence have different meanings (as in propriety it seems they should), by essence, I think, can only be meant, the abstract natures of things; or the ideas of the things in the divine intellect, which were before the things themselves existed. Mr. *Locke* rather takes essence for the *being* of any thing (*r*); though we usually

(*r*) ——— “ But since the essences of things are
 “ thought by some (and not without reason) to be wholly
 “ unknown; it may not be amiss to consider the
 “ several significations of the word essence. First essence
 “ may be taken for the *being* of *any thing*, where-
 “ by it is what it is, and thus the real internal, but
 “ generally in substances, unknown constitution of
 “ things, *whereon* their discoverable qualities *depend*,
 “ may be called their essence. This is the proper original
 “ signification of the word, as is evident from the
 “ formation of it; *essentia* in its primary notation, signifying properly being, &c.” *B. 3. ch. 3. sect. 15.*

Here

ally say, such a property is of the *nature* or *essence* of a thing, taking either word indifferently;

Here (not to mention that it is not extraordinary for the signification of a derivative word, especially in a philosophical acceptation, to differ very widely from the grammatical meaning it might have according to the form it is derived in) the word [*being*] I think, is equivocal, and signifies the *internal unknown constitution of things*, less properly, at least less commonly, than any other thing. The *being of a thing* is ofteneft taken in opposition to the *not-being* of it; and then it is the same as the *existence* of it. We say such a thing is not *in being*. And sometimes it imports both essence and existence; as when we say *we have our being from God*; that is, both our existence, and our nature or essence. But granting that *essence, being, and the internal unknown constitution* of substances, are properly the same thing; since this internal unknown constitution once existed not, and yet was known then in the *Divine Intellect*, it must have been in idea there. So that at last, in any acceptation of the word, we must resolve the essence of things into *idea*, and make it the same with their *nature*.

There is one thing farther may be observed from the place here cited. Mr. *Locke* allows that the internal, unknown constitution of things is *something*; since their discoverable qualities are owned to depend on this; which, I think, is very right, for qualities cannot depend on *nothing*. This is taken notice of, because sceptical men begin to suppose they have Mr. *Locke's* authority for insinuating that the unknown constitution of things is in

ferently; but never that it is of the *being* of it, which rather imports its *existence*. Be it as it will, there can be no great mistake in saying, a property is of the essence of a thing, when that thing cannot be conceived without this property. Now, by N^o 2, and 5, above, it is contradictory that the soul should at any time, even while united to the body, be without the power of action, that is, of thinking; for reflection is action; and thinking, or reasoning, is reflection. And by N^o 7, 8 and 9, it is contradictory that, in a state of separation, it should not always be active, or exercise this power. And by the reasoning in N^o 7 and 19, it appears that it is only the indisposition of the body, that can interrupt the exercise of the soul; and that *substance*, or what *he* calls *substratum* is but empty sound. But if there is any such thing as qualities or properties, there must be some *farther thing* to which they belong; since a quality could not subsist by itself, or without a subject. This *other thing*, if we speak of it at all, must be called *subject*, *support*, *substance*, or some such name; let these men ridicule as much as they please. For though we know not what this substratum or support of properties is, nor have any particular idea of it; yet we know *that it is*, unless properties could subsist by themselves. And if there be neither *properties* nor *subject*, there would be nothing left to exist.

ercise

ercise of this power at any time. So that, if they had made a distinction between *activity* and *real action*, and excepted some certain intervals of inaction perhaps (though none of this caution was absolutely necessary, as will appear immediately); no body could have taken exception to their opinion. If we take away from our complex idea of a *substance*, the particular ideas of those properties, by which only we collect that it is a substance, we take such complex idea quite away; since it consists only of those particular ideas. If we take away from our idea of matter, those of solidity and extension, we leave ourselves no idea of it remaining. After the same manner, if we deny activity and perceptivity concerning spiritual substance, by which we can only collect it to be a substance, we deny every thing we know concerning it; or we deny ourselves to have any idea of it; and reasoning about it as without these powers, we reason precisely about nothing, of which we have any particular idea. To say it may still be a substance without these powers, is to suppose it *dead substance*, which could never come to the exercise of these powers again if it had once lost them,

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as we see it doth. And therefore it can never be without them. Solidity seems not more necessary to the conception of matter than activity and perceptivity to the conception of spirit. And since considered absolutely in itself, it cannot *not exercise* these powers; the justest idea of it is, that of an *active perceptive being*, which we cannot conceive in itself, without real action and perception. Mr. *Locke* says, it is not necessary to suppose the soul always in action, and that thinking may be to the soul what motion is to the body: not its essence, but one of its operations (*s*). But with submission to

(*s*) “ I confess myself to have one of those dull souls,
 “ that doth not perceive itself always to contemplate
 “ ideas, nor can conceive it any more necessary for
 “ the soul always to think, than for the body always to
 “ move; the perception of ideas being (as I conceive) to
 “ the soul, what motion is to the body, not its essence,
 “ but one of its operations; and therefore though think-
 “ ing be supposed never so much the proper action of
 “ the soul; yet it is not necessary to suppose that it
 “ should be always thinking, always in action. That
 “ perhaps is the privilege of the infinite Author and Pre-
 “ server of things, who never slumbers nor sleeps; but
 “ is not competent to any finite being, at least not to
 “ the soul of man. We know certainly by experience
 “ that

to so great name, there is this material difference, *motion* is no more the action of matter than *rest* is; it is equally inactive in both as hath been shewn. Matter stands in need of an *external cause* to put it into motion, or bring it to rest again; but the soul doth not want an *external mover* to set it a thinking. And therefore there is no room to run a comparison between the action of the soul, which necessarily springs out of its own nature, and the motion of matter, which must be excited in it, by *some being* not material. This looks as if *action* were equally extrinsic to them both; or as if it were as natural for the soul to be without action, as for matter to be without motion; which is to pervert our justest conceptions of spiritual substance.

Besides, allowing Mr. *Locke's* acceptation of the word essence, that it is the real, in-
“ that we sometimes think, and thence draw this infal-
“ lible consequence, that there is something in us that
“ has a power to think; but whether that substance
“ perpetually thinks, or no, we can be no farther assured
“ than experience informs us.” *B. 2. ch. 1. sect. 10.*
The reason why it is improper to refer to experience in this case, will appear immediately.

ternal, but generally in substances, unknown constitution of things ; it will not follow that everything is separable from substances, which is not this real internal constitution, as he seems to take for granted. The properties that immediately flow from the internal constitution of things, are as inseparable from them, as that constitution itself ; and we can as little conceive the thing without these properties, as without that constitution. *Divisibility*, figure, magnitude, are not the internal constitution of matter, but properties necessarily flowing from it ; and yet we can as little conceive matter without these, as without its own internal constitution ; that is, we can as little conceive it without these, as *without substance*. This must be so ; for it is by these that we conceive it at all to be a substance, or to have an internal unknown constitution. And for a like reason, activity and perceptivity, by which powers alone we discover that there is a substance different from matter, and which is the necessary subject of their inhesion, must be in the mind, even previous to the internal unknown constitution of that substance ; as necessarily as it, and with much more clearness

clearness than an *unknown thing* can be. If it were pardonable to run so high, I might say, that those very powers of activity and perceptivity, which are not the internal unknown constitution of spiritual substance, are yet inseparable from the *necessarily existing Spirit*; and the constant exercise of them also; as Mr. *Locke* observes, in the place last quoted from him.

But then, as to his acceptation of the word *essence*; as it seems not just in itself, so, I think, it is inconvenient in philosophy. The word, *Being*, by which he explains *essence*, rather imports the actual existence of a thing, than its internal unknown constitution, as hath been observed. Thus Dr. *Clarke* calls his excellent book, *A Demonstration of the Being and Attributes of God*; that is, a demonstration that there really exists a God, and what his attributes are. It would have sounded strangely to have said; a demonstration of the *essence*, or internal unknown constitution, &c. And then, if substances have unknown *essences*, and other things have not; it will either follow, that there are two different species of *essences*; or that other things besides substances have *no essence at all*. This
hath

hath thrown Mr. *Locke* upon the distinction of *real* and *nominal essences*; which, though it hath obtained, since he wrote his book, yet I humbly beg leave to say, I do not see any service it hath done to philosophy. And this again hath thrown him upon the absurdity of asserting that all our *moral* and *mathematical ideas*, those of virtue, vice, justice, temperance; a circle, square, cube, triangle, &c. (things of as *fixt* and *immutable* natures, as any that can be named) having only according to his distinction, nominal essences, are nothing but the mere arbitrary compositions of ideas in our minds: which admitted, would be of the greatest *disservice* both in *philosophy* and *practice*, as shall be shewn elsewhere

XXIII. This farther may be said for those, who place the nature of the soul in thinking, and suppose it to think incessantly, (taking thinking in the sense of being always percipient of some idea or other) That it is impossible to shew the contrary, even in this state of union with the body; though it hath been here allowed, and often supposed, to avoid unnecessary debates in improper places.

Who

Who can say that ever he found himself in a state of unconsciouness; or when there was no idea at all subsisting in his mind? Indeed it is contradictory that any man should so surprize himself, impercipient to wit, of all things, with respect to the *present time*: for he is conscious by supposition, and reflecting upon an unconscions state. And as to the *past time*, he cannot have any memory of such a state: for whether ever such a state *was*, or *was not*, it is either way a contradiction that he should remember it; and he cannot bring an argument for it, from his not remembering of it. If a man came through a dark room, he may be certain there was no light there; for his eyes were open, and he missed the light: but if a man passed an hour of unconscions existence last night, there is a wide difference. He did not perceive an absence of consciouness then; nor can he now; since he could do it but by remembering it. He hath not two distinct consciounesses, one to be extinguished, and another remaining to perceive the absence of the first. He doth not perceive at the time, and therefore cannot recollect afterward the last thought he was conscious of, at the beginning

of the blank, nor the first upon emerging out of it, (to be the two extremes, as it were); nor the distance and length of time betwixt. By Mr. *Locke's* own arguments concerning the idea of duration, he must think these two extremes contiguous; and therefore conclude, that he had been conscious without intermission. It is easy for a man to confess, *that he hath one of these dull souls, that doth not always perceive ideas*: but I beg leave to observe, that this *modesty*, which is designed to pass for an argument, is somewhat *inaccurate*; for he confesses a thing for certain, which he can never be certain of. It is not in the power of the soul to become imperipient of ideas at pleasure: and were the thing effected, it would be the sign of an ill disposed body, and not of the dulness of the soul. It is strange enough to appeal to experience (*t*) for the reality of a state, which
by

(*t*)—"And last of all sound sleep closes the scene quite,
 " and puts an end to all appearances. This, I think,
 " almost every one has experience of in himself, and
 " his own observation without difficulty leads him thus
 " far." *B. 2. ch. 19. sect. 4.* But this is only experience of having no memory of consciousness then, which doth not infer that we had no consciousness then. When

by supposition, is an utter negation of all experience. It is true, the argument is very good, that a man cannot think at any time, waking or sleeping, without being sensible of it (*u*): but this respects the present time, and is far from concluding, that a man cannot think sleeping or waking, without retaining the memory of these thoughts afterward; which yet is the thing designed to be concluded by it. Why else should experience be alledged, which is the memory of things past? It were to be wished that he had told us, what author it is that asserts, that the soul in an Evidence makes oath, that his memory doth not serve him so far, how much proves he by this? Nothing surely on either side. He only owns that the point in controversy might have been so, or otherwise, for any thing he can remember. Mr. *Locke* says, (*ch. i. sect. 10.*) “the “ question is about a matter of fact.” To this I reply directly, the question is about a matter of *not fact*; about a negation of all fact. Every body allows we are generally conscious; this is not the question then: But if we are sometimes without consciousness, it is absurd to say, we forget our unconsciousness; it is absurd to say, we remember our unconsciousness. Where is the matter of fact to be testified to then? Or how is experience applicable? Let a definition of experience be given.

(*u*) Ch. i. sect. 10.

a sleep-

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a sleeping man thinks, without being conscious of it; upon which he asks the question, Whether, during such thinking, it has any pleasure or pain, or be capable of happiness or misery? and adds, *I am sure the man is not, no more than the bed or earth he lyes on* (v). Because it is strange, if any man put him to the trouble of confuting this contradiction, with the supposition of *Castor* and *Pollux*, *Socrates* and *Plato*. The position his adversaries maintain infers no such contradiction; nor justifies another to infer it for them. There is certainly a great deal of our past consciousness, which we retain no memory of afterward. It is a particular mark of our finite and imperfect natures, that we cannot become conscious of all our past consciousness at pleasure. But no man at night would infer, that he was not in a state of consciousness and thinking, at such a certain minute about twelve a-clock of the day, because now perhaps he hath no memory what particular thought he had at that minute. And it is no better argument, considered in itself, that a man was not conscious at such a minute, in his sleep, because next

(v) Ibid. sect. II.

morning

morning he hath no memory of what ideas were in his mind then. A man cannot be conscious of the last idea he hath in his mind when he falls asleep; the most he can do here, is to recal the last idea he hath any memory of: but this doth not prove it *the last*. We have rather memory and experience of our sliding gradually from a state of *waking*, to that of a *sleeping consciousness*: and though the particular idea that divides the one kind of these consciousnesses from the other, is not assignable; for there is really, I believe, no such idea, but a gradual transition, or degenerating of the one state into the other; yet if we are casually awakened a little after our falling asleep, and take time to observe, we shall easily enough *trace back* the last ideas and consciousness that occupied the mind, for some little time at least. Just so, if we take time in the morning to reflect, before we let in the thoughts of business, and our familiar waking ideas, to efface the slender impressions and images made in sleep, we shall easily discover some of those that occupied the perceptivity last. And the same thing happens at any intermediate time, due attention being given, and waking thoughts
being

being kept from rushing in too suddenly. And since this happens at any time indifferently, it is at least a probable argument, and repeated experiment, as it were, which when duly made, always succeeds, and shews that the matter of fact is probably as those philosophers suppose it (x).

XXIV. Though the point were not to be accurately determined on any side; probability inclines most to the incessant action and perception of the soul, even in this state. There is nothing more common than to remember a scene of vision, which we have had in sleep, some considerable time after, from something that then happens to ourselves or others; and which, without this occasion given to

(z) Mr. *Locke* doth not represent the objection right in his *Seet. 14. ch. 1. b. 2.* It appears from this, that it is not only not impossible, but easy, to forget on being awakened, what we were dreaming the minute before. And due care being taken, it is certainly also not impossible to observe it in many cases. A very remarkable Author, writing on this subject, hath these words. *I suppose the soul is never totally inactive. I never awaked, since I had the use of my memory, but I found myself coming out of a dream. And I suppose they that think they dream not, think so, because they forget their dreams.* M. R. B. in his defence of the soul's immortality.

the

the mind, of thus recollecting it, we should perhaps never have recovered. And certainly, at any time before this recovery, the argument, that then the mind was unconscious, because we retained no memory of it, would not only have been bad, but false. Of how much consciousness, and activity of the soul, do we lose the memory every night, because of the slenderness of the impressions, which are easily disturbed, as the day thoughts rush in; or because of the shortness of the duration? *Volucrique simillima somno*, is a very expressive comparison for any thing that is *fleeting* or *shy*. The visions offered to us in sleep, are often independent and without connexion; probably often designed to contradict each other, and our waking thoughts too; which makes them to be remembered with more difficulty than our waking thoughts. Yet frequently *these last* have the same disadvantageous qualification, and are difficultly retained. A scene must have a natural coherence to be easily remembered. Memory is chiefly assisted, perhaps in this state of union, by sensible impressions made on the organ, and there preserved for some time at least. These are fading and transitory, and

in sleep mostly clouded over, by the nature of that indisposition ; which is the reason why we cannot then use our past experience, or memory of things ; to convince ourselves that the appearances offered to, or forced upon the soul in sleep, are not in truth existing externally ; for the internal representation is as real, as if the object of it existed from without. But possibly we shall discover a view of a *superior faculty of reminiscence* in proceeding to examine this appearance, which is *independent* of a corporeal organ, or seat of impressions made on the sensory. We are by no means justified in philosophy, to draw weighty inferences, such as that the perfection of rational thinking may depend upon matter, or that the soul may owe its perceptivity and life to that dead substance ; I say, we are by no means justified in drawing such weighty inferences from a perplexed and dark phænomenon, without narrowly examining the nature and circumstances of it, as far as they are accessible to us. And it is not to be dissembled by Mr. *Locke's* greatest admirers, that his method of reasoning all along on this subject, tends to lead weak and sceptical men, to make these inferences ; not to
say

say that he points out the way to them, by hinting broadly at these inferences himself. It looks as if he not only thought it possible that matter might think, but true that the soul was really matter, when he says, “ I
“ grant that the soul in a waking man, is
“ never without thought, because it is the
“ condition of being awake : but whether
“ sleeping without dreaming be not an affection of the whole man, *mind as well as*
“ *body*, may be worth a waking man’s consideration (y).” Then it seems separate souls may sleep. *God differs from his creatures in higher prerogatives, than that he doth not slumber nor sleep.* It is here granted, that while we are awake, we are under a necessity of thinking. If then we were always awake, we should be always under that necessity.—How comes it then that we are not always awake?—Is it the defect of the soul? —This was the *chief point* to have been considered, in order to consider the appearance on all sides. It hath been shewn that spirit hath *no parts*; and therefore it stands in need of no reparation, or re-disposing its parts aright; as the body doth, which consists of

(y) Ibid. sect. 4.

parts that are constantly changing, and liable to be disordered. This shews on which side the indisposition lyes. Again, we have undoubted experience, that the soul thinks and lives, while the senses are shut up, and can minister nothing; while the body is laid up to be refitted, a mere vegetable system: and I have shewn, that it implies a contradiction to say, we have experience of the contrary. And what is the plain inference from such opposite symptoms? Lastly, allowing all that is alledged, *viz.* that sometimes we sleep without dreaming; is it therefore to be inferred, that sleep is an affection of the soul? Is it not conceivable to any man of *plain common sense*, from what I have said (N^o 20.) concerning the difference of appearances, that two opposite substances, a *dead* and a *living*, must make by being united; and from what I have said concerning the perceptivity of the soul, in itself not bounded, but limited in its union with body, (see the note (n) N^o 15.) is it not easily conceivable, I say, from these considerations, that its activity may be quite hindered from being exerted; and its perceptivity entirely impeded, by a farther limitation, (granting that to be the case)

case) without supposing that it is laid up to be refitted, in sleep, as the body is; or making sleep an affection of immaterial being? If a man puts in a bit of paper to hinder the balance of his watch from beating, or if this is effected by any other disorder of the parts; it would be improper to say that the immaterial impulse, or power, by which she goes, is then asleep, though it be hindered from having effect.

XXV. There is one argument brought by Mr. *Locke*, which is boasted to be decisive, as fully proving that thinking is not inseparable from the soul. It is that action may be *remitted* or *intended*, sometimes more and sometimes less; a variation which it is not conceivable the essences of things can be subject to (z). This is indeed specious at first view, and yet it is a very equivocal argument and concludes different ways, according to the different acceptation of the word *essence*. He grants that thinking is action, and supposes essence to be the internal, unknown constitution of things, whereon their discoverable qualities depend. Now that thinking or ac-

(z) B. 1. ch. 19. sect. 4.

tion, which is a known property of the soul, should be the internal unknown constitution of the soul, is a contradiction; and proving the contrary, is proving what was never denied. But this is not the genuine acceptation of the word *essence*. See the note (q) N^o 22.) A late Author hath rightly observed, that *essence is explained by the chief and radical property of a thing, or all the properties of it.* Hence the chief and radical property is the essence of any thing in idea, though the thing should not exist, nor have any internal unknown constitution. *Essence* (as the same Writer remarks) is very different from *existence*: the essence or nature of things is *invariable*, and their existence only *contingent*. From this we may see the fallacy of Mr. *Locke's* argument: he makes essence the internal unknown constitution of things: and because it is contradictory that *thought* should be of the essence of the soul in this sense, he infers it is not of the essence of the soul in the other sense, or so as to be inseparable from it. This is as if I should say, A circle is a figure contained under four equal sides, making four right angles; but there is no point within this figure, from which all the lines drawn to the sides

fides are equal : therefore it is not the essential property of a circle, that all the lines from a point within it to the outside should be equal. That thought is essential to the soul in the last sense, is easily proved. For it must be essential to one of the two substances, *i. e.* either to matter or spirit ; otherwise the highest perfection in nature must be but merely casual, or an extraneous accident in the universe : and since it hath been shewn that thought can neither be essential nor accidental to matter, it must be essential to spirit, or such a property as cannot be separated from it without destroying its nature. Or we may argue thus : If thinking is essential neither to body nor soul, how come we at all to think ? Is it by mere accident ? If it is by mere accident, it is possible the soul might never think. If it be said the soul *lays down* and *takes up* thinking at its pleasure, [by its own power, by its own will, command, or any other way that can be named] it is a direct contradiction. If the soul pleases to take up thinking after intermission, [or if it *wills, commands* this] it must be previously thoughtful. If it be said, it stands in need of some external principle to bring back thought to it ; this is to own that it would

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never think again of itself, but be a dead inactive substance for ever after such intermission, unless thus restored by some external being. And the argument must come to this on Mr. *Locke's* hypothesis, if the soul were for any the least time without thought. The power of thinking in a substance once dead, is not to be conceived, because it is contradictory. Life itself consists in being percipient, in this we are necessary. And if we are percipient, we must have perceptions, by the terms. Thus it is very conceivable that the soul should *remit* its activity in thinking, through all degrees, till at length it can *remit* no farther, and finds itself necessary in having some perception or other. Experience confirms this, as far as we can have experience; and reason evinces it universally: nor can any objection be made to it but only this, that we do not remember all our past perceptions, the weakness of which hath been sufficiently shewn before.

XXVI. Mr. *Locke*, in his way of arguing, takes it for granted, that if a property doth not enter into the internal unknown constitution of a substance, it is separable from
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that substance; which still was the main point to be proved: for, as has been remarked N^o 22. a property which necessarily flows from the internal constitution of any substance, must as necessarily belong to it, as that constitution itself. And there must be such properties as *necessarily* flow from the internal constitution of substances; Mr *Locke* owns the discoverable qualities of substances depend on their internal constitution: therefore the property must always belong to the internal constitution of the substance; that is, to the *essence* of the substance, even in his own sense of the word *essence*. Thus *figure* is but a property of matter, and a variable property; for it may be changed in the same individual quantity: yet this variable property *invariably* and *inseparably* belongs to matter. So thinking, (allowing it a variable property) may invariably belong to the soul. And it is only the exercise of the power, not the power itself which is subject to the variation of being *intended* or *remitted*. This doth not make the power itself separable from the soul. If the power of action were separable from a being, because the exercise of it, or the exerting particular acts, was arbitrary;

arbitrary; then activity would be separable from all free beings, or there would be no such being: for their freedom in exerting the power would deprive them of that power. But farther, the *exercise* itself of this power is not separable from free or active beings; since as hath been shewn N^o 8. such beings are not free to act, or utterly to abstain from all action, but to do this or that action by a preference. Again, Mr. *Locke* himself grants, that *thinking is the condition of being awake*. A property then capable of being *intended* or *remitted*, necessarily belongs to the soul, at least for that time: and if we were always awake, that property would always and necessarily belong to it. And since we cannot cease being awake at pleasure, it is not in our power to become unactive at pleasure; or we are necessarily active. And since it is the indisposition of the body only that occasions our not being always awake, it is the indisposition of the body only that hinders our not always exercising the power of activity; allowing the soul were sometimes utterly inactive (*a*).

XXVII.

(*a*) Upon the whole of what is said in these two last paragraphs,

XXVII. I shall in the last place take notice of an objection, which possibly may be started concerning paragraphs, the appearance of thinking, or *cogitation*, seems to stand thus. The soul is sometimes in a hurry of thought, and the transitions from object to object are quicker than can be expressed. Then it becomes calmer and considers things at leisure; and it may *slacken* and *remit* its activity more and more, to a certain degree, till it can go no farther upon the side of inactivity: but still it must have some perception or other *in view*. And when we have come this length, if we would endeavour to keep this *one solitary* perception still in view, and be no farther active, we shall find a prodigious difficulty in it; or, to speak more truly, it is impossible with all the *care* and *attention* we can *bestow*. Now doth not this shew us, that when we would endeavour to be inactive beyond a certain degree, *we increase the activity* by that very endeavour? I may compare this effort of the soul to the descent of a pendulum, which can go no longer than *a certain point*; and a great force to descend makes it but rise the higher on the other side. The comparison only halts in this, that the pendulum will at last remain in the *lowest point*; but the soul cannot *rest* in the perception of one solitary idea. It begins motion of itself again, if I may so say, because of its active nature. All this is verified in our own experience. When we compose ourselves to sleep, and resolve to think no more till next morning, the resolution has no effect. The soul hath various and innumerable thoughts succeeding one another, which we may easily observe; till at length

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concerning the *souls of brutes*. It will perhaps be said, since these are immaterial, by the
second

length (as I said before) all degenerates into an internal scene of vision and dream.

Let us now suppose that after one dream is ended, another should not succeed, but that in the soundest sleep the soul had no perception at all. Being then an *impercipient substance* (for four or five hours together perhaps) it must be quite dead. If it were not, let any one tell me *what life* is; or wherein it consists? Shall we say it consists in the *power of living* only? That is absurd. If the soul is once without perception, how could it exercise the power to recover its perception? If we say the matter of the body makes it percipient again, or brings back its perception to it, that is no less absurd. If the matter of the body acts upon it, it will perceive the action; but that is not to *make it percipient*, or to bring back perception itself to an impercipient substance. How should the soul perceive the action if it were not awake? Or how could it be awake without perceptions? The soul cannot be asleep, if it is a *simple uncompound being* that stands in need of no reparations; nor could it be always awake without always having perceptions. The very reason then why the soul is percipient of the action of our bodies upon it, when we awake, is *because it is always awake*, and always percipient. In a dream, when it is certain that the soul is *percipient* and *awake*, it is yet not percipient of any external touch upon the body. Why? The action is really not communicated to it. This familiar instance shews us that the soul is awake, but the body is unfit to communicate action to it. How

can

second section; simple, and therefore indissoluble, without an act of Omnipotence, by the

can it be said then that the body by acting on it *makes it percipient*, or brings back its perception to it again; when it is plain that it is percipient already, but that the *nerves* or *spirits* are in no capacity to act upon it? This instance likewise shews us, that the soul would be percipient of any external touch upon the body while we sleep, of which it is percipient while we are awake; if the action were communicated to it; and consequently it discovers to us, by way of experiment, on which side the indispotion lies, and that sleep is not an affection of the whole man, *soul as well as body*, as Mr. *Locke* insinuates.

In a word, there is no supposing the soul to be impercipient in sleep, but by supposing the perceptivity of it to depend upon matter, which I have shewn in many places of this section to be a contradiction: or by supposing that it sleeps in its own nature. And we cannot suppose that it sleeps in its own nature, but by supposing that it is a *compounded thing*, made up of parts of different natures, some of which fly off, or wear out, like those of the body; that is, by supposing, I think, that it consists of matter and spirit. But this is not only false, as has been shewn in the last section; but I would argue concerning the *active half* of such a *compounded soul*, as I have done already, when I supposed it uncompounded. The *pure immaterial part* would never need sleep or reparation. And thus I would pursue the argument through all divisions, till it were owned that either the soul was all *matter*, or that a *pure uncompounded spirit* needed no sleep nor reparation. Now from all that hath

the third; and since the fundamental argument in this section, That two powerless substances can never beget power between them, nor their union be the cause of *that* power, is as applicable to *these*, as to the souls of men: it will follow that if the souls of brutes super-exist the dissolution of their bodies, they must be active and percipient as much as the souls of men are. I might answer to this first, as in the last paragraph of that second section, to a like objection; that though this should follow, it would not, certainly, infer that the human soul is unactive and impercipient after death; but rather conclude the contrary more strongly. But in this case that is always supposed an objection, which in effect proves none. It is like raising a terror, which when the first surprize is over, appears to be without foundation. Men who hold the immateriality of the soul need not be embarrassed (as it is said they are) how to dispose of the immaterial souls of brutes, or be concerned what powers they

hath been said it appears that the concessions which were made in the beginning of this section, needed not have been made; or that they were *suppositions*, or only concessions *pro tempore*.

may have after the dissolution of their bodies; but leave all to the Being who made them. But secondly we may observe, how far the argument in this section is not applicable to the souls of brutes. It is to be observed that the activity of the human soul is of *two kinds*, that which is exerted in moving the limbs spontaneously; and that power whereby we turn back our perceptive capacity to our past perceptions, or bring them in the view again, so as to compare them together. The perceptivity of it is also twofold; for it is percipient of the action of matter upon itself, and percipient of its own internal operations in thinking. See sect. 1. N^o 1. The last kind of activity, and the perceptivity resulting from it, is much more noble, more indefinient, and indefeasible, than the first. Now, though brutes have the first of these powers in common with men, and the perceptivity belonging to it; yet they want altogether the second, and therefore the perceptivity resulting from it: for it is in that power alone that the rational nature consists; since we are neither rational nor free in any other respect. In the discovery of truth, and all the acquisitions of knowledge we make, we are active only in
bringing

bringing together and methodizing our ideas by this power; and we as necessarily see their agreement, diversity, or several relations, as we see external objects with our eyes, when open; all which shall be made appear in due time. And in this section the activity reasoned from, insisted upon, and which forces the conclusion, is this *second sort*. As I said, it is more indefinient, and more extensive. The activity of the soul whereby it moves matter, and is percipient of the manner how that affects it, is soon impeded: but the other sort is often not the less vigorous. When a man lies down fatigued, he can still think with pleasure on many subjects; his reflexion travels over the globe, turns back to past ages, and dives into futurity. And when the body is quite wearied out, consciousness and perceptivity do not leave the soul. Since therefore the consciousness and activity reasoned from here, in the several instances, is *our own* as we feel it within, and arising from the rational power of the soul; the conclusion will not be applicable to the immaterial part of brutes. They want this power and perceptivity in a state of union; therefore we could not have argued for it in a state of separation;

tion;

tion: the argument of the two powerless substances would never bear us out. The power must appear in the union, that we may be sure it belongs to one of them in separation, since it could not be produced by simply uniting together two things void of such power. And when neither part hath the power in the state of union, as is the case of the two substances in the brute nature, this reason cannot infer it when they are separated; whereas the objection supposes it does. They who run the parallel between the human soul and that of brutes, suppose still the same powers in both; but surely rationality must be founded in some power, which the brute soul, as such, has not. This argument therefore doth not prove the activity of the brute soul when separated: tho' if any one could prove it, he would do no disservice perhaps to philosophy (*b*).

(*b*) If the brute soul super-exist the dissolution of the body, we cannot conceive it without the perceptive capacity, as to external objects; and that in a greater degree ~~than~~ when confined to it; but even here it is inferior to the human soul. It is not percipient of harmony in sound; of proportion or beauty in figure or colour; of order in succession, &c. It seems rather per-

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cient of the simple existence of things, than of their manner, order, &c. of existence. As also, if it super-exist; it is easier to conceive that it must have some kind of activity, than to determine what that is; for though it hath the power of moving the body, it hath then no occasion to exercise that power. And in this respect also it is much inferior to the human soul; though that doth not impress a greater motive force on the matter of the body, yet it impresses it in consequence of reflection, and therefore on a thousand different occasions, in which the brute-soul is unconcerned. It seems rather to move the body in consequence of sensation, or of being first acted upon, and hath not so much the principle of action in itself. But all this will be better understood hereafter.

S E C T. V.

The several arguments against the immateriality of the soul, urged by Lucretius and others, examined, and shewn fallacious, as applying the equivocal symptoms of a disordered organ in a state of union to the soul itself.

According to the method proposed, the objections against the immateriality of the soul are next to be considered. These have been all mustered up (or the greatest part of them at least) by *Lucretius* near eighteen hundred years ago ; so that now they are become common topicks, and a kind of *classical arguments* ; and as they fall in with our prejudices, they are easily understood, and therefore in every body's mouth. The wit and elegance of this author, and the charms of his numbers, recommend these objections particularly to those who admire politeness in writing, more than *accuracy in thinking*. Hence they have all the

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advantages of becoming popular and gaining ground. Now, though the truths evinced in the preceding sections render any difficulties of this kind not very formidable ; yet these considerations make it necessary to apply the principles laid down above to the discussing our particular prejudices, and the arguments that have been raised from them. Some men perhaps cannot take this pains for themselves ; and the greatest part have their thoughts taken up about quite different matters : and yet both these sorts of persons might be willing to take a review of this subject, if things were set in right order before them. The Sceptic's whole art in this affair has been to apply ambiguous appearances to his own side of the question. By ambiguous appearances I mean, *those phenomena in a state of union, which seem at first sight to infer the materiality of the soul ; but upon a nearer view are found to be very consistent with its immateriality.* The symptoms and disorders of the body, which the soul must be sensible of in a state of union ; *because the soul must be sensible of them,* have been artfully given out for the symptoms and disorders of the soul itself: where it is
obvious

obvious at first view that, if once we allow the body to be liable to disorders, as most certainly it is, things could not have been otherwise, let the soul be ever so much *a pure spiritual substance*. And it will farther appear, as we go on, that even some of those *ambiguous appearances* which have been brought to prove the materiality of the soul, afford a strong and clear proof of the contrary. However that all objections may be taken off with more advantage and clearness, I beg leave to lay down the following principle, and to mark particularly the *strength* and *extent of it*; and this the rather, as it seems to be forgot by the generality of sceptical Writers; though it is as old as reason itself, an eternal truth, and leaves no room for doubting: but these men very deliberately admit into their reasonings that a contradiction may be possible; and think an objection not the less strong, though it proceeds on this supposition. The principle is this:

II. It is impossible the effect should be perfecter than its cause, either in *kind*, or in *degree*. For if the effect were perfecter in

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degree than the cause of it, all that degree, or excess of perfection in the effect, which is not in the cause, would be really uncaused; or it would be a perfection effected, without being effected by any thing: that is, effected and not effected: And if the effect were perfecter in *kind* than the cause that produced it, or contained, not only a greater degree of the same kind of perfection, but quite another and superior kind; then that whole *species* of perfection, and not any degree of it only, would be uncaused, or the effect of nothing; which is yet a greater contradiction than the former. Any one will find, by pursuing this in his own mind, that if it could be true, nothing could be false, nor nothing impossible. No man could assert a thing, which another could not as justly deny. If the cause could communicate to the effect what it had not in itself, then any cause might bring to pass any effect, be the disproportion between them ever so great; nor could limits be set, where this giving away what it had not, or doing what it could not, would end. And at last, all would end in this; that in reality no cause was necessary to produce any effect: for one

part of the effect might as well exist without a cause, as another. And then I suppose it would be needless to philosophize farther about any thing. If it were possible that any one truth could *fall*, or be *not-truth*; no other truth could be trusted to: but rather all truth would fall with it; because all truth proceeds equally from the same eternal Reason or Mind, and is equally necessary in it. And the final result of all would be, the denying this eternal Mind itself: and then indeed an endless night of darkness would cover the understanding, and the difference between truth and falsehood cease for ever. For as eternal Truth leads to an *eternal Mind*, where it was eternally known, and subsisted: so, supposing that away, the reason of things fails. And what man can endure to think of a *necessary absence of reason in nature*, an universal defect of truth! Yet this abhorred confusion doth the taking away the above principle lead us directly to. The Sceptic could not then have a reason for denying. *Denying supposes truth*; some certain principle: and therefore an *eternal Reason*. So inconsistent is he with himself! to be consistent, he should be for ever silent. His ve-

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ry objections suppose the existence of that eternal Reason, that *adorable infinite Mind*, the non-existence of which he would prove by them (a). III. Now

(a) It will be in vain to object against the principle here established, That sometimes an Artist may make a piece of work, surpassing his own skill and idea; for it is plain that, truly speaking, this is impossible. Though his work should surpass his art, it cannot be said that he makes it surpass it: he must then have art to do the thing which he had not art to do. A lucky hit, though commonly called chance, is really a concurrence of some cause, or causes, unknown to the Artist; and this indeed may give his work a degree of perfection, which he did not design, or could not design; but then this excess of perfection in his work above his art, is as much the effect of these *concurring causes*, as the perfection of it below that excess, was the effect of his art. In a word, strip this objection of every concurring cause, and it becomes a direct contradiction: take in concurring causes, and it becomes no objection. The mistake is; we ascribe a part of the effect to the wrong cause, and thence to no cause at all: “The man produced the effect; he did not, or could not, design it all; therefore what exists more than he designed, is produced by nothing.” This is false logic. The effect sometimes falls short of the design (as it were a man shooting at a mark); there is a reason for this; sometimes it goes beyond it; there is a reason for this. Nothing can be, for which there is no reason, and of which there is no cause. We take our aims; but are not infallible in the direction of spon-

III. Now as all truth is consistent with itself, and as the denying this principle leads to downright Atheism; so we may observe by the by, that (*vice versâ*) from the force of this principle it appears an express contradiction to assert, that there is no other cause but dead matter in the world. For supposing it some way to have got existence, and not examining how it could be moved; if once there had been nothing but matter, any way moved, no effect could have been produced, nor no perfection existed, beyond what is in dead matter; nor active power ever have been exerted: and from this again the necessity of an immaterial Being, the cause of the material Universe, is obvious. But

taneous motion by the act of the will. I have shewn we do no more. The rest is committed to another agency (N^o 24. sect. 2.) and performed by a steady, unerring course of nature (see the Note (z) N^o 35. sect. 2.) and every thing comes out regular, and in proportion to its causes. Though the effect doth not answer our design, to which our conduct was disproportionate; it answers to nature's steady laws. All this will be applicable to the objection of the painter and his colours. Where free causes intervene to disturb the effect, there is no objection, or dispute. not

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not to insist on other things, what concerns the present purpose is; it follows from this principle, that it is *absolutely impossible* the mechanism of the body, or mechanical motion, howsoever excited, should be the cause of life and spontaneity, as it appears in the meanest reptile; and the impossibility is extremely heightened, if we ascend up to the nobler activity and perception that is in the soul of man. For matter then by being *moved*, must acquire a power of moving itself; from being *inert* and *passive*, it must become an agent; from being *necessary*, it must rise to the perfection of freedom; from being *dead*, and without all sense, it must begin to be percipient and conscious; to imagine, reason, distinguish, form abstract notions; to be wise, prudent, moral, &c. which are all perfections, not only surpassing mechanism and mechanical motion in degree; but infinitely excelling it in kind. This is a notion so grossly absurd and unphilosophical, that whoever considers it seriously, would be tempted to think, he is combating a creature of his own imagination; and that surely no man was ever foolish enough to affirm it: yet it is what the *Epicurean* Atheists directly assert (*b*);

fert (b); what all sorts of Atheists must necessarily suppose; and what the present Sceptic

(b) I have before observed that *Lucretius* ascribes all productions and effects to chance.

Nam certè neque consilio primordia rerum

Ordine se quæque, atque sagaci mente locârunt, &c.

Lib. 1. ver. 1020.

Compare this with what he says, lib. 2. from ver. 864. to ver. 990. where having spoke of equivocal generation and the change of matter in the bodies of animals, he adds,

Jâmne vides igitur, magni primordia rerum

Referre in quali sunt ordine quæque locata,

Et commista quibus dent motus, accipiântque?

Ver. 882.

Illud in his igitur fœdus meminisse decebit;

Non ex omnibus omnino, quæcunque creant res

Sensilia extemplo, & sensus me dicere gigni:

Sed magni referre, ea primum quantula consent,

Sensile quæ faciunt, & quâ sint prædita formâ,

Motibus, ordinibus, posituris denique quæ sint:

Quarum nil rerum in lignis glebisque videmus.

Et tamen hæc cùm sunt quasi putrefacto per imbres

Vermiculos pariunt; quia corpora materiai

Antiquis ex ordinibus permota novâ re,

Conciliantur ita, ut debent animalia gigni.

Ver. 890.

This is a strange piece of reasoning. No man can read it without seeing the absurdity of it. The Sceptic pretends to be shocked with the credulity and ignorance of the world. From this one would imagine that nothing could

tic would still maintain, if possible, under some disguise or other. If this could be; all that

could be advanced by him, but what was highly reasonable, and evident in itself; yet no man has a greater share of this credulity, nor says such shocking things. *A bit of wood, for instance, may become a living Being: a particle of matter if placed on this side produces nothing; but if placed on the other side, it has life and motion: knowledge and reason are only the result of a different order or situation of these dead atoms.* If his Adversaries spoke thus, they would justly deserve that ridicule and contempt with which he treats them. The reason why *Lucretius* advanced all this, was (as he says) to free men from superstition and error; and the like things are still maintained under the same pretence; but it would be better, if the Sceptic (according to the character he first sets out with) would broach no hypothesis of his own; if he would content himself with pointing out to other men wherein they are wrong, and shewing the weak sides of the arguments they adduce. Truth would thus be no loser; men would either reconcile difficulties; or relinquish the principles whose consequences were evidently absurd. But when it appears he hath other views, an itch to maintain something of his own; his pretences, though specious, become suspected. And yet it was always thus; we never had a disinterested *Examiner* of other men's notions. The *Academick* himself will not keep within his own province; he has a favourite scheme, contrary to the neutrality he promises to observe. When a *Sceptic* turns *dogmatist* in favour of his own hypothesis, nothing can be more out of character: and yet I am apt to

that is said in the last paragraph would follow; we could never be wrong in affirming
any

to think, no man ever set up to be a *cool Doubter* but with the view of being a *warm Zealot*. This is an artful way to prepossess the minds of men: an *Enemy* to credulity and vulgar schemes is always supposed to have a secret fund of better knowledge. But let the passage I have just now quoted bear witness, how we are rescued from superstition and popular errors. Let me seriously ask, Is superstition overcome by believing contradictions? On the contrary, if once we admit these, we are then fit to receive any creed in philosophy.

We may go farther and observe, whatever the *Pyr- rhonist*, *Sceptic*, or *Academic*, may pretend, the solicitous mind of man hates to be in suspense, and will believe something, or frame something to be believed. A certain great Author banters us for *taking part*, and compares us to drowning men, who catch at any thing to keep themselves above water: and yet the same person frames a party, and *takes it*, to keep himself from being swallowed up in the depth of bottomless doubting; he tells us that there are Enthusiasts on all sides, and Mr. *Bayle* has observed that there have been Martyrs for infidelity. So impossible is it to believe nothing; or not to believe something with vehemence! Now, since it is certain that the rational mind (*as such*) hates to remain in suspense, and goes into some conclusion or other; this consequence plainly follows, *That we should be as cautious in doubting as in dogmatizing*: It is easy to hoist our sails, but uncertain whether the winds and waves may carry us. The direct contrary of this conclusion hath
been

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any thing of any thing: perception, spontaneous motion, reason itself and virtue, would be perfections effected in matter, precisely by nothing, by no cause at all; for the cause assigned is as void of these perfections, as no cause, or the negation of all cause is.

IV. As to the disguises, under which sceptical men would still support this notion;

been admitted in all ages: Every man supposes himself qualified to be a *Doubter*; want of attention will make us think so; but the question should be considered, how we are to steer next? for, as I have said, we will *take party*, and go into some conclusion or other. Without this caution errors will be multiplied instead of being corrected; and it is to this want of being qualified to doubt aright, that the several denominations of Atheism are owing. There is but one way by which the vessel can enter the port again; but a thousand ways she may miscarry in the wide ocean. Contradictions, like rocks and shelves, are easily stumbled on. *Epicurus* stumbled on chance and atoms; *Strato* on matter and gravity: *Aristotle* himself on an eternal and necessary vicissitude of things; that is, as I take it, a *changing necessity*. It had been better to have kept to his Master's doctrine. From all this it appears, That it is not so easy to doubt as is generally imagined; and that there never was any such thing as an Unbeliever: these cool men have their different creeds, so much the more shocking as they are less common.

however

however they may seem at first view to perplex the point; yet they leave the assertors at last under a necessity of maintaining the same undisguised absurdities, and of undertaking the defence of all the contradictions just now mentioned, in N° 2. For either they must say, that all and every part of matter is free, thinks, reasons; which is shewn before (Sect. 3. N° 8.) from the endless divisibility of it, to be monstrously absurd (*c*); as every one is conscious from his own experience; and which therefore the *Epicureans* durst not assert; but strongly maintained the contrary (*d*). Or else they must say, that the bare putting together atoms dead and senseless, is the only cause why the compound becomes endued with all the powers of a human soul; which is really to return to the *Epicurean* scheme, and to be pressed with all the nonsensical contradictions above. It is the very same thing as to assert, that the repetition of the negation

(*c*) No matter can be one thinking substance; because, as Dr. Clarke observes, no matter is one substance, but a heap of substances.

(*d*) *Lucretius* says, in the place last cited, at ver. 864.

Nunc ea, quæ sentire videmus cunque necesse 'st

Ex insensilibus tamen omnia conficere

Principiis constare: ———

of

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 of cause multiplied so many times, becomes
 a cause. This contradiction is not lessened
 by taking in figure, position, motion; since
 the compounding atoms are still dead and
 senseless, by supposition, and by necessity.
Lucretius took in all these, long before the
 modern Sceptic thought of them (e). Nay
 farther,

(e) *Sed magni referre, ea primùm quantula constant
 Senfile quæ faciunt, & quâ sint prædita formâ,
 Motibus, ordinibus, posituris denique quæ sint:—*

It will be urged here, that often we see a material com-
 pound have properties, that are not to be found in the
 parts of it: as it may have a spherical, cubical, &c. fi-
 gure, which the parts have not. To this it is answered,
 though the parts may not have the same figure with the
 whole, they must have some figure; and so in other
 things. From this it would follow only, that though
 the parts may not have the same thought, perception, or
 volition with the whole; yet they must necessarily have
some thought; and this is not only granted, but proved
 above (Sect. 3. N^o 8.) Here let me mark the disin-
 genuity or the ignorance of Dr. *Clarke's anonymous Ad-*
versary. He says a clock *hath power to tell the hours*,
 which none of the parts separately have. It was shewn
 (Sect. 2. N^o 14 and 15.) when speaking of machines and
 mechanical motion, that the figure, order, position of
 parts, or any other possible quality matter can be endued
 with would not simply make the clock move any how
 without the immaterial power of *gravity*, constantly act-
 ing. Where is the argument from this for the materi-
 ality

farther, this contradiction is not lessened, by saying infinite Power puts the dead parts together, or moves them thus mechanically. This is but borrowing the authority of a word, to make a contradiction pass. It is the same thing as saying, infinite Power may bring a thing to pass, without applying power or efficiency, to produce it. Infinity of Power doth not exclude reason; it is infinitely reasonable, and therefore cannot be a refuge for a contradiction. But this is all

ality of souls? And all that is effected is, that the index is regularly moved, by this uniform action of gravity impressed partly on the *poise*, and partly on the *pendulum*; which sure is no power in the clock. It is a power from without, impressed on dead matter, and communicated by *resistance* to other dead matter. This is no power in the machine; for it hath no power to do otherwise. This is that very particular in mechanism, and inseparable from it, that destroys the Sceptic's scheme. As to telling the hours, all that is in this *equivocal expression* is, that by this mechanical motion time is in some manner measured to us. But doth the *system of wheels*, by its own power and skill tell the hours? That is the idea designed to be conveyed under an ambiguous expression. The Author might, by the same philosophy, have assured us, that the earth *hath a power* of making night and day, and of placing the sun in all the signs. These, in short, are such powers as consist in passivity only; that is, powers that *are not powers*.

the use the Sceptic makes of it: after it hath served his end in such absurdities; infinite Power is but a word, like other things, and the infinitely powerful Being nothing. Lastly, let us observe, that it is perfectly absurd to say infinite Power may superadd a property to a substance incapable of receiving it, (N^o 14, 15, and 26. Sect. 1.) that is, incapable of being the subject of it. The substance being first divisible, and then the parts of it still remaining dead; the property can have no subject of inhesion but the junction of dead parts to dead parts (*f*). But, as hath been said before, that the junction, putting together, or cohesion of dead particles, itself a property, should be the subject of another property, is an absurdity Mr. *Locke*

(*f*) The necessity of what is here asserted will appear thus. Suppose the *thinking compound*, or *whole*, divided into two halves (as all matter is divisible); if both these think, divide them again, &c. If all the parts *still think*, all matter is a thinking substance; and what multiplicity of consciousness must there be in a material soul! Or if we stop at any division, the last thinking *whole*, resolved by division into unthinking parts, had nothing but the *junction*, or adding together of these parts, to be the *support* of the superadded property, of thought, reason, &c. which, notwithstanding the word *Omnipotence* inserted, is as contradictory, as any other way of asserting the materiality of thinking Beings. himself

himself hath sufficiently exposed. Whence it is plain, whatever artifice or shift men may make use of in affirming the materiality of the soul, they will always be liable to the contradictions shewn above : and from the principle there laid down, all the objections against its being immaterial, drawn from the symptoms of mechanism, and mechanical motion in the body, lose their force at once ; without recurring to what was said N^o 13. Sect. 2. which cuts them off upon other accounts. However we shall go on to particularize them.

V. The first difficulty men pretend to have in allowing the soul to be material, is what hath been accidentally mentioned elsewhere (Sect. 2. N^o 32.) *viz.* that they cannot conceive *when*, or *how* immaterial substance could be joined to matter in the bodies of men, beasts and insects. But to shew the weakness of this objection, we need only consider what hath been already proved to be done even with regard to the bodies of animals, and by whose power. The bodies of all animals, man's not excepted, are brought up from things of imperceptible magnitude, through

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various stages, under different forms, and with different methods of œconomy; so that often the body of the same creature seems as different from itself, as from that almost of any other (*g*); and all this by the constant intervention, and real action of infinite Power exerted. The inexpressibly fine mechanism is the Work of Almighty Wisdom; the mechanical motions are his impressions; and thus spontaneous motion itself is effected. How can we think then, when his Power is present in forming and moulding their bodies, and ready to be subservient to their spontaneous motions, *that he should forget to add the spontaneous principle, or that there should be difficulty in it.* This is the chief part of the work, and principally intended. We could scarce conceive even of a man, when he forms the parts of any machine, that he should forget the power which all

(*g*) The body of the common frog goes through eight or ten different shapes, before it is perfected; not to mention the transformation of insects, some of which first *creep*, then *swim*, and at last *fly*: and the microscope shews us that nature is uniform and consonant to herself in the formation of all animals, which are very different in the first *stamina*, from what they are in their last perfection.

the

the rest suppose, and for which they are designed. The Power of the Creator is incessantly exerted upon all the inanimate parts of the creation; and must it not be greater in proportion when exerted upon the living and rational part of his works? And then how high will that proportion rise? It shall be shewn, or rather it is self-evident, that the wide extended Universe, though stretched beyond the bounds of imagination, with all the wonders of wisdom, and power in it, is solely designed for the sake of *intelligent Beings*, to train them up for a rational eternity. These are the proper *Eleves* (or pupils, if I might so say) of a Being himself infinitely rational. His care therefore about these, either in uniting them to, or disengaging them from matter, and in all other respects, must (if I may venture so to speak) be the principal part of his work, his ultimate view. *Lucretius* says, *Esse animas præsto deridiculum esse videtur*. But what is there ridiculous in it, except thinking as he did that they were *ready* by chance? This indeed is absurd enough, but the absurdity is of his own making.

VI. The next argument for materiality is, That we see the soul *generated* with the body, *grow* with the body, and at last *decay* with the body; at first tender and weak, then robust; and in the end feeble and worn (*b*). I observed before, when speaking of spontaneous motion, (Sect. 2. N° 18.) that the reason of the imperfection of it in infants, wounded men, decrepid old people, and generally all those who labour under any kind of infirmity or disease, is the ineptitude of the instruments and apparatus of motion; that all on the part of the *will* is equally dis-

(*b*) *Præterea, gigni pariter cum corpore; et unâ
Crescere sentimus; paritèrque senescere mentem.
Nam velut infirmo pueri, teneroque vagantur
Corpore; sic animi sequitur sententia tenuis.
Indè ubi robustis adolevit viribus ætas;
Consilium quoque majus, et auctior est animi vis,
Post, ubi jam validis quassatu 'st viribus ævi
Corpus, et obtusis ceciderunt viribus artus,
Claudicat ingenium; delirat linguæque mēsq̃ue;
Omnia deficiunt; atque uno tempore desunt.
Ergo dissolvi, &c.*

Lib. 3. ver. 446.

How absurd is it here to pretend that the same *feebleness* is in the intensity of childrens desires, as in the *limbs* of their bodies, contrary to all experience!

posed

posed then as at other times; that the common sense of mankind doth not allow, or imagine it possible, that disease or age should affect the will, or weaken the intensity of our desires; and that we are subject to no decays or depredations of time in respect of that which is the proper activity and power of the soul. But the *Epicurean* hath palmed upon us the accidents of the body, as belonging to the soul itself; because by the law of their *present union*, it is forced to sympathize with them. It was while he looked upon his *arms* that *Milo* wept, and cried; *At hi quidem jam mortui sunt*. He did not lament the decay of his soul, but his muscles shrunk up, and sinews unstrung. It is the body of the elephant, that supports the turret and fighting men. Let us suppose, as a possible conjecture only, that the body hath an *immaterial mover*, which is obliged to move it, by the instrumentality of organs, and the laws of mechanism; and all these appearances become *equally necessary*, as on the supposition of *Lucretius's material movers*: which shews us how *equivocal* these appearances are; and how *sophistical* it is to build a conclusion upon them. But when we call to mind the

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principle laid down in N° 2. and the reasoning upon it N° 3. (That it is impossible matter, by being moved, should arrive to the power of moving itself, &c.) that which was only a possible conjecture, becomes absolutely certain; and the sceptical conclusion demonstratively false. Farther, let us put the Sceptic in mind here, that though there is a nobler species of activity in the human soul, than moving the body; yet since that can no way appear, but by some motion of the body; and since all bodily motion is performed mechanically, even by *Lucretius's robust soul*: if the mechanism of the body is quite disordered, the power of the soul must be quite hid to us, who can see but with bodily eyes; while the active Being itself remains untouched in its nature. Therefore he concludes wrong from the former premises, when he says,

*Ergo dissolvi quoque convenit omnem animæ
Naturam; ceu fumus in altæ aëris auras.*

VII. As to what is said in this objection of the *generation and vegetation* of souls; it is contradictory that any substance, whether
material,

material, or immaterial, can be generated (Sect. 2. N^o 32.); and contradictory that immaterial substance should vegetate: vegetation is performed by the addition of dead parts. The human soul is indeed at first without knowledge, and without experience; but hath the power of attaining both. Why should it be endued with the *power*, and prevented in the *exercise* of it, by receiving its knowledge instantaneously? Have the power to acquire a thing; and receive it without the help of that power? This is the very particular that distinguishes it from the irrational soul of brutes. They are incapable of improvement; finished in their specific perfections all at once. Not having this power, they have no novitiate to go through; nor is improvement expected from them. It is true, it was necessary that the *first individuals* of mankind should be furnished extraordinarily with knowledge, or experience at least. *The first institution of things is always necessarily different from the law of their future procedure.* This is so with respect to the very body: with respect to every thing, if ever there was a *creation*, rather than an *eternal series* of dependent and effected causes. But

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it would have been *even* unreasonable that it should be thus, after the institution was settled. Our improvement must be by our own industry, a part of our *probation* as rational, having received the power, and being forced upon the first exercise of it by the necessities of the body. Of all which hereafter. It was wisely ordered, agreeably to this, that the body should be long weak, (longer weak than that of any other animal) till experience was attained, and the foundations of knowledge laid. It had been easy to have entered us upon the world, with the same perfection of knowledge and reason, that we have when we go out of it; or much greater: but I beg it may be considered, that habits are to be acquired by the terms; and therefore habits of virtue. Such a notion as *infused virtue* is inconsistent. *Improvement must be our own act*; our first trial therefore was to be in our first beginnings; and, naturally speaking, I may say our only trial; if we consider how easily the mind, once enflamed with the love of reason and virtue is carried on. How absurdly is it in every body's mouth, *That nature is a step-mother to man only of all living creatures*; when

when the *Author* of nature proceeds in the most rational course with rational beings! Every thing is best as he hath ordered it; if we would judge according to the nature of things, and not by the measure of our own prejudices.

VIII. The insinuation of the soul's wearing away and decaying with the body, is a wilful mistake; there are such instances of the contrary, as cannot leave a man ignorant, that the decay is all on one side (*i*). People

(*i*) See *Cicero* of old age. The instance of *Ap. Claudius* is remarkable. He was blind with age, and not able to walk——But I refer to his speech in *Plutarch's* life of *Pyrrhus* [Πρότερον μὲν (ἔφη) τὴν περὶ τὰ ὄμματα τύχην ἀναρῶς ἔφερον, ὃ Ρωμαῖοι κ. τ. λ.] And of *Pyrrhus* himself, when he was shipwrecked on the coast of the *Mesapii*, he says, The storm threw him ashore τῷ μὲν σώματι πανάπασιν ἀδυνατως ἔχοντα, τόλμη δὲ καὶ ἐνυμη τῆς ψυχῆς ἀνιάσθησα πρὸς τὴν ἀπορίαν. I shall not speak of *Masiniſſa*, nor compare with him *Aurenge-zebe* in latter times; but desire any one to consider the account which the *Abbé de Vertot* gives of the King of *Maroc*, and the different circumstances of his *body* and *mind*, the very last day of his life, in which he gained the battle of *Alcacer*. (*Revolutions of Portugal*, p. 19.) *Il se voyoit mourir lui-même & sa foiblesse étoit si grande, qu'il ne douta point, qu'il ne fût arrivé à son dernier jour, il n'oublia rien dans*
celle

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of sober and temperate lives preserve a *clearness* of judgment, and *vigour* of mind, to the last: though this cannot be said indeed of *luxury and constant debauches*, which first attack the springs of mechanical motion, and disguise the activity of the soul, long before it leaves the body (*k*). It is remarkable, that the great Philosophers of antiquity were men of long lives, who wrote and taught till extreme age. For this purpose I might quote all *Tully's Book de Senectute*. How well doth

cette extremité pour le rendre le plus beau de sa vie. Il rangea lui-même son armée en bataille, & donna tous les ordres avec autant de netteté d'esprit & d'application, que s'il eût été en parfaite santé. Il étendit même sa prévoyance jusqu' aux événemens qui pouvoient arriver par sa mort, & il ordonna aux Officiers dont il étoit environné, que s'il expiroit pendant la chaleur du combat, on en cachât avec soin la nouvelle, & que pour entretenir la confiance des soldats, on feignît de venir prendre ses ordres, & que les Aides de camp s'approchassent à l'ordinaire de sa litieré, comme s'il eût été encore en vie.—I shall not transcribe more, but the whole passage deserves to be read. Such instances as these sufficiently take off the calumny in the objection.

(*k*) *Libidiosa enim & intemperans adolescentia effectum corpus tradit senectuti.* Cic. de senectut. Some, it is true, receive a bad constitution from their parents: but hereditary distempers are generally owing to misconduct in their first rise.

Cato

Cato rectify our prejudices (l)! a virtuous old age, such as the *Censor himself* describes it, is the loveliest spectacle in human things. The virtuous old man has attained what all men desire (m); and in the way that all men should desire it: he is past the shelves and dangers of life (n), which the young must encounter (*fatally perhaps*); he rides securely in the port (o); and shall, instead of being extinguished for ever, be safely landed in a new country; unless we can suppose that rational beings are to be abandoned at last, by a Being himself infinitely rational: which if we could affirm, there is nothing that we might not deny. In short, a philosophical

(l) *A quâ [naturâ] non verisimile est, cum cæteræ partes ætatis bene descriptæ sunt, extremum ætatis, tanquam ab inerti poëta, esse neglectum. Ibid.* If we put down *God* for *Nature* here, no reason can be stronger, nor any thing more true.

(m) *At est eò meliore conditione [senex] quàm adolescens, cum id quod sperat ille, hic jam consecutus est. Ille vult diu vivere, hic diu vixit.*

(n) *O præclarum munus ætatis, si quidem id aufert à nobis, quod est in adolescentiâ vitiosissimum.*

(o) *Quæ mihi quidem tam jucunda est, ut quò propius ad mortem accedam, quasi terram videre videar, aliquandoque in portum ex longâ navigatione esse venturus.*

youth

youth makes a comfortable old age (*p*). And then we are on the *confines* of the *kingdom of reason*; ready, and (by going through this last and best part of our life) in some measure prepared, to enter into the society of its inhabitants (*q*). And if this be a rational expectation, there is an end of the Sceptic's objection; for a rational delusion is a contradiction (*r*).

IX. The next argument brought to prove that the soul is nothing but the result of the mechanical disposition of the body, is, that in some distempers of the body it is delirious; and mad, and speaks wild things; and that the power of medicine cures it again, as it

(*p*) *Aptissima omnino sunt, Scipio, & Læli, arma senectutis, artes, exercitationesque virtutum: quæ in omni ætate cultæ, cum multum diùque vixeris, mirificos afferunt fructus.*

(*q*) *O præclarum diem cum ad illud divinorum animorum concilium, cætumque proficiscar !*

(*r*) Must it not appear absurd to any thinking person, to say, *Man may contrive something more reasonable than God hath?* This in general is contradictory. And in the present case the contradiction is flagrant, if we should say, an infinitely rational Being may frustrate his creatures of a rational expectation.

doth the body (s). The modern Sceptic always quotes this with great security and triumph; but let him seriously reflect how little it concludes. For since by N° 2 and 3, (not to go farther back to other arguments) it is the greatest contradiction that spontaneous motion, in the meanest insect; that the very irrational soul in brutes; that words spoke ever so much at random; that any perception or idea, how wild soever, should be the effect of pure mechanism: how much a greater impossibility is it, that such a noble appearance as *reason disturbed* (for, in respect of the brute-nature, even that is an appearance of great dignity) that such a superior appearance, I say, should be the result of a mechanical disposition of matter! If reason disturbed is the result of mechanism disturbed, *reason is the result of mechanism*. Doth not this leave the assertion still loaded with all that heap of intolerable absurdities mentioned in N° 2? Reason disturbed is a complex ap-

(s) *Quin etiam morbis in corporis avius errat,
Sæpe animus; dementit enim, delirâque fatur, &c.*

Lib. 3. ver. 464. and again ver. 509.

Et quoniam mentem sanari, corpus ut ægrum,

Cernimus; & flecti medicinâ posse videmus:

Id quoque præagit mortalem vivere mentem, &c.

pearance,

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pearance, implying *reason*, and the *disorder* of that reason ; or reason affected after a certain and particular manner ; now, since it is certain that the power itself must belong to an immaterial being, it is very conceivable that the disorder, or the particular affection, or the disturbance in the exercise of that power, may proceed from an external cause, either material, or immaterial. This I think is a categorical answer to this boasted difficulty. Let us here resume a little the example of the clock, N^o 20. of the last section ; and it is not only reasonable to argue with the Sceptic from that example, by which he seems to insult over his adversaries ; but remarkable that he may be confuted from it : suppose it should strike twelve, while the hand points at six, and that all the motions in it, how many soever they be, should contradict each other, instead of agreeing ; every body would allow that these contradictory motions as much stand in need of a power to produce them, as if they agreed. There is indeed no difference in either case, as to the motions themselves : and as to their jarring, we would refer that to some accidental impediment, or any thing rather than the
want

want of an *immaterial Power*, such as gravity or elasticity. And though we saw the motions brought to harmony again, and the disease (so to call it) cured, by rectifying the disorder of the parts; that could never make us believe that no mover was necessary, besides the mechanical configuration of these parts; but confirm us in the contrary, by shewing us where the disorder lay, and how it was cured (*t*). By this we may see, in a parallel case, how the disorder of the mechanism of matter may disorder the action, or influence, of an immaterial power upon it (for such the action of gravity or elasticity hath been shewn to be); and therefore plainly enough reconciles any such disorder, with the immateriality of the soul.

X. When this will not turn to account, the modern Sceptic makes another use of

(*t*) This, and a thousand other instances, shew, that a thing may be an impediment, if wrong; which cannot be an efficient cause, though ever so right: and yet it is plain, in all the Atheist's arguments for the materiality of the soul, it is taken for granted, that nothing could hinder an effect, but what could produce it. Which any one may apply at his leisure to them all.

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the present difficulty, and contends that at least the perfection of rational thinking depends on the mechanism, or right disposition of the matter of the body; “else why should
 “an accident, or indisposition of the body disorder our reason?” This objection is so plausible, that the generality of men allow it to be matter of fact, and therefore unanswerable; and yet it is plainly *equivocal*, and hath, like most others, a double meaning; one that is consistent enough with the immateriality and rational nature of the soul, and another, artfully shuffled in under colour of that, inconsistent with both these. I have just before observed, *That a thing may be an impediment when wrong, which cannot be an efficient cause, though right*: and therefore the real *efficient cause*, though it hath in itself all the *power* and *art*, must depend on this *other thing* for not hindering or obstructing its operations: and there are abundance of instances which shew familiarly that the regular exercise of a faculty or power, may be disturbed by the wrong disposition of an organ or instrument; and yet the skill of the *Artist* be quite independent of the right disposition of it. Thus a *Musician* can make but bad harmony, if
 the

the instrument he plays on be out of order; nor can the most common *Mechanic* exert the perfection of his skill, if the tools he works withal are unfit for his purpose. Now to apply this; the soul is forced in this state of union, to have recourse to a material sensory, where the impressions of things are first made, and still preserved, as to its *repository* or *diary*, if I may so say. From all that has been said in the three last sections, and the beginning of this, it appears that the soul is as different from this material sensory, as a Musician is from the harpsicord or instrument he touches. The soul can apply to this repository, examine the nature of what it finds there, chuse this, reject that, compare things, join them together, reason from them, and (so to express it) make up musick and harmony out of them: for all this doth not recede far from the comparison mentioned. In this the perfection of rational thinking consists, since here the power and activity of the soul is exerted, and all the art and skill manifested. But if these impressions are *darkened*, as in sleep; or if they are *disordered* and *jumbled*, as in many casualties (which the objection hints at) they

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may; or if other impressions are made, contrary to the order of *external nature*, as in *dreams*: that the soul should be percipient of impressions, which for the time are not, or not percipient of those which are, is impossible; which therefore can be no imputation on its rational nature; for thus far it is barely passive. If new impressions are made, or the former impressions darkened, or not patent; it is only the perceptivity of the soul (in which we are *necessary* and *passive* at all times) which is misinformed *from without*, and not its rational power or activity, which is perverted *within*. Let it be considered, that even the sensory, or that part of the brain to which the soul is united, is *external* to the soul, *i. e.* doth not belong to it as a part of itself: and therefore it may have misrepresentations made to it, by means of this, and yet not be *touched* or affected in its own nature. I do not see, according to this objection, why it should not be made an imputation on the rational nature of the soul, that it is at all joined to a material organ. And then the objection is levelled at *something higher* than the soul itself. What imperfection can it be in a percipient Being, that it is percipient

percipient of what is presented to it? What is it that makes us percipient of the beautiful prospect of nature in a starry night, or of the pleasant landskip round us by day? It is that certain impressions are made by the optic nerves on *this sensory* we have been speaking of, and which the *percipient* is under a necessity of perceiving. And if in a dream, or otherwise, different impressions should be made on the sensory, whereby the face of nature should be represented wild and hideous; or if sounds should be excited full of horror and discord; the percipient must be equally passive in perceiving these. Thus we see there is the same necessity in the nature of the thing, for perceiving these impressions which are made reproaches on the soul, as for perceiving the greatest beauties of the creation.

XI. Farther, can it be any imputation on the soul, that the *register* in the corporeal sensory is darkened, or covered up in sleep? or suppose this should happen in other cases? This plainly proceeds from the imperfection of the body. But is it the fault of the soul that it is obliged to make use of this corpo-

real register? If there were any fault here, that would be levelled at a *higher cause*, as has been said; but there is really no mistake or blunder in the case; but a necessity arising from the confinement of spirit to a dark corporeal prison: when the confinement is taken off, things must be otherwise. Now external circumstances being thus disposed, the register or seat of memory is darkened, impressions are made on the sensory, the soul necessarily perceives these, the perceptions are as real as if the objects really existed, the soul takes them for real, it acts and behaves as if they were real. This is neither to be delirious nor mad. It would be requiring too much of an *embodied spirit* to blame it for being subject to illusions. Let us for once suppose, that all these alterations were made in the sensory while we are awake; and then let any one say what would be the consequence. The soul would behave in the very same way as it does while we are asleep. There is no man, no not the greatest Philosopher, who would not be thus imposed on. He hath not considered the thing aright, who thinks he should be able to stand his ground. Lastly, let us suppose that sleep goes

goes off. The animal spirits act on the brain as usual, the register is opened, the late impressions effaced, and all is as it was before. Thus the rectifying the organ frees the soul from the illusion to which it was exposed through the means of that organ. The expression therefore [*mentem sanari, corpus ut ægrum, cernimus*] is fallacious and equivocal. All this seems an intelligible and easy account of this matter, because in truth it is fact: and how it may be applied in other cases shall be shewn in another place, where this subject shall be considered more at large. In the mean time let me observe that, from what has been said it appears unfair, to turn what passes in sleep to a *reproach* on the rational nature. Attentively considered it vindicates the soul from aspersions, and may be of farther use. The Sceptic, after he hath made a bad use of it, would have it remain in that light, and be no more regarded: but that would be wrong. The argument it affords for the super-existence of souls, is certainly obvious, and was so in all ages. I am apt to think that this *single appearance* (misunderstood and misapplied indeed) gave the first rise to *Superstition* and *Polytheism*. Ho-

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mer is led by it to point full at the super-existence of the soul. He speaks of it with wonder, and introduces the *prospect* which it opens, with an ὦ πόποι, in those remarkable lines which he puts in the mouth of *Achilles* after the death of *Patroclus* :

ὦ πόποι ἦ ῥά τις ἐστὶ καὶ εἰν Ἀΐδαο δόμοισι
 Ψυχὴ καὶ εἴωλον, ἀτὰρ φρένες ἐκ ἐνὶ πάμπαν·
 Παννυχίη γάρ μοι Πατροκλῆος δειλοῖο
 Ψυχὴ ἐφεισθήκει, γοῶσά τε, μυρομένηη,
 Καί μοι ἕκασ' ἐπέτελλεν ἔϊκτο δὲ θέσκελον αὐτῷ.
 Iliad. ψ. ver. 103.

There is no reading this without finding the springs of nature touched in us: and the severest Philosopher must allow the observation as just in reason, as it is natural. But, which is more to my purpose, the *cold* and *sceptical* *Lucretius* was more afraid of *this appearance*, that it would overturn his whole scheme, than of all the phænomena of nature beside. He foresaw the difficulty from the beginning, and was on his guard to provide for it. In proposing the several *heads* of his work, in his entering on it, his manner

ner of mentioning this is very remarkable. —“ Chiefly, (says he) “ we must investigate with sagacity the nature of the soul; “ and what it is which occasions those frightful visions to us, either *while broad awake* “ when sick, or while buried in sleep; so “ that we think we *bear and see those* before “ us, whose bodies are laid in the earth (u).” Accordingly, he hath contrived a *long mechanical* solution for this phænomenon in his fourth book, in which how he hath succeeded we shall see afterwards. So Mr. *Hobbes* seems to have been no less apprehensive of this appearance of dreams to the overthrow of his position, *That the soul and all*

(u)——*Tum cum primis ratione sagaci
Unde anima, atque animi constat natura videndum;
Et quæres nobis vigilantibus obvia menteis
Terrificet, morbo affectis, somnèque sepultis:
Cernere uti videamur eos, audiréque coràm,
Morte obitâ quorum tellus complectitur ossa.*

Lib. 1. ver. 131.

And elsewhere he gives this reason for solving the appearance of dreaming by what he calls *simulacra*.

——*Ne forte animas Acherunte reamur
Effugere; aut umbras inter vivos volitare:
Neve aliquid nostri post mortem posse relinqui.*

Lib. 4. ver. 41.

Spirits

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spirits else were material; which, as hath been observed above, he is express in asserting: and he owns pretty explicitly, that a great part of the *Pagan Religion* was owing to it. In his chapter of imagination (the second of his *Leviathan*) he says, “ From this
 “ ignorance of how to distinguish dreams,
 “ and other strong fancies, from *vision* and
 “ *sense*, did arise the greatest part of the reli-
 “ gion of the *Gentiles in time past*, who wor-
 “ shipped satyrs, fawns, nymphs, and the
 “ like; and now-a-days the opinion that rude
 “ people have of fairies, ghosts and goblins;
 “ and of the power of witches, &c.” How this Author solves the difficulty, we shall also see below: but tho’ the chimerical imaginations of weak people are here industriously jumbled in with this phenomenon, which is *real* and *constant*, yet that it *naturally tends* to strike religion into the minds of men, is such a quality, as should provoke our curiosity to see what may be in it. Though superstition be a human weakness, yet all religion is not to be accounted bad, as *Lucretius* contends. This constant and universal appearance was not designed to stumble men, I dare say. Nor was it designed for *no end*,
 nor

nor for a *bad end*; nor is it *the effect of chance*. If in sleep all had been *an universal blank* of consciousness and action, it would have been very difficult to have persuaded most men, by reason alone, that the soul retained *these powers* in that state: but as things at present are, we see that the soul doth not owe its perception to the body, that it is percipient when that can communicate no action to it, and that sleep is not an affection of the whole man. (See the note (x) N° 26. of the last section). These particulars farther plead an excuse for endeavouring to find out some light, some consistent meaning in this perplexed subject. (See N° 23. of the last.)

XII. From all that is said it appears, that it is no reproach upon the rational soul to say, That the perfection of rational thinking depends on the matter of the body, as an *impeding* or *obstructing cause*: But that the perfection of rational thinking should depend upon the matter of the body, as a *promoting* or *effecting cause* (which is indeed the true meaning intended in the objection) is a direct contradiction. There is certainly a *dependence*; but it is such as I have described it to be

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be above. Men when they turn their thoughts to the limitation and impediment which dead matter naturally gives the soul, both in perception and the exercise of its rational faculty; and when they observe that, the disorder of the organ being again rectified, the faculties of the soul are no farther obstructed, but rather exerted; men, I say, when they observe this difference, and the soul's keeping pace, as it were, with the body, should not ascribe this dependence *to the efficiency* of the material organs, but to the *restraint* which the soul is subjected to thro' their means. It is easy to mistake the one of these dependences for the other, as I might shew by variety of examples; and yet they lead quite different ways, and to opposite conclusions. The reasoning in the last section, if remembered here, and the principle laid down in the beginning of this, shew undeniably, that the perfection of rational thinking cannot be effected, or promoted by the dead matter of the sensory. Therefore, not to say any more on that head, I shall only farther add, that we talk so much of the *sensory*, and (though it is but barely instrumental in conveying outward motion to the percipient

percipient being (v) suppose it so absolutely necessary to perceiving; that at length we seem to fancy that the perceptive capacity lyes in it alone; or at least, that it is the first and chief thing that perceives. So much doth the sound of the word [*sensory*] make us forget the nature of the thing! Nor do we stop here; but having once allowed it to be the *percipient*, we at length suppose it to be the *agent* also; though it is very certain from sect. 1. and 2. that this same *sensory* is, after all, nothing but dead and *senseless* matter. Why should a sensory be at all necessary to the soul in a state of union? This is certainly worth considering. Only for this reason, because in a state of confinement to a dark and close cell, the action of external objects was to be conveyed to the soul, by some material part or other, if it were at all to be percipient of them. And it is thus kept at a distance from the objects themselves, and receives information about them by the mediation of *another thing*, and with disadvantage (x). Hence the soul is at a great deal

(v) See the Note (n) N^o 15. of the last Section.

(x) I must observe here, with respect to what is said concerning

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deal of pains, by the help of its other faculty of ratiocination to find out the true natures of objects, from this disadvantageous and distant manner of perception. From this it appears we make a very false inference, when we conclude, because such a thing as this sensory is necessary to the soul in a state of union, it must be equally necessary to it in a state of separation. This is to forget the difference of these two states; or to think a *medium* of communication will still be necessary, when we suppose the necessity removed. This is as if I should say, the contrivance of a *camera obscura* would still be necessary, tho' I might look directly on the objects themselves in broad and open day-light. For, as

concerning sensories, that it is an exceptionable way of speaking to say, *Universal space is the sensory of the Deity*. I believe it is designed to shew us the necessary immensity of God; or that space which is *necessary* and *something*, (not a pure negation) some way or other belongs to him. But the analogical meaning of the word *sensory* is not to be applied to a Being, whose life and perception can neither be *limited*, nor *enlarged*. This word is misunderstood (as I but just before observed) as if it were the organ without which the soul would be impercipient. But let it be taken in any sense whatever, the Deity cannot stand in need of an organ of perception.

hath

hath been remarked above (Note(n) N^o 15. of the last section) we may consider the *eye* as the *lens*, and the sensory as the sheet of white paper which receives the *images*. But farther, it is necessary not only that images be formed on this sensory, but that the impressions of them remain there for some time after, when even the *artifice* of a *camera obscura* cannot take effect; as in *darkness*, *silence*, and the *absence* of the object. But these very considerations shew that none of this artifice will be necessary in a state of separation, when the soul is unconfined, and can therefore perceive at first hand what is done without, by applying *immediately* to the objects, or being itself directly accessible. Memory therefore by impressions must be unnecessary in such a state (as has been asserted in the last paragraph); as much as a *copy* would be unnecessary, when we might consult the *original* itself. And when we are forced to own that it is the soul itself which perceives thus at second hand, and under all these disadvantages; we must also own that it will perceive at first hand with more ease; for this is still but *perceiving*. Let me add one consideration more with respect to this sensory,

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senfory, and impreffions upon it, to fhew the difadvantages the foul is under in perceiving by the help of fuch a material organ. It was neceffary that this organ fhould be *foft* and *yielding*, that it might be capable of receiving impreffions from the leaft force; the force to wit of the rays of light acting on the optick nerves, or other fuch feeble action. And this very quality makes thefe impreffions liable to be effaced or weakened by any the leaft *contrary force*. So that it is wonderful they fhould be preferved for any confiderable time, as we find they are: and I can afcribe this wonder to nothing but the Almighty hand of God, and his unfeearchable Wifdom. Let us then for once fuppofe that thefe impreffions were as *lafting* and *durable*, as if they were engraven on marble or adamant: this would add no *new power* or perfection to the foul; and yet it would feem to act with more power and perfection in that cafe: Which may fhew us how falfly we reafon concerning the nature of the foul; as alfo how difadvantageous it is to have thefe impreffions made in fuch foft and yielding materials (y).

XIII. More-

(y) From this *yieldingnefs* and *foftnefs*, which a material

XIII. Moreover, since the constant action of the animal spirits upon this *soft* and *yielding* organ, is required, to keep the impressible sensory must have, because of the use it serves for, we now see the reason why it should be so easily *disturbed*, and the impressions on it *disordered*. Without *softness* it could not have been a sensory; and without being *liable* to be disordered, it could not have been soft. Hence a stroke, a fever, drunkenness, sleep; nay excessive anger, joy, or any other violent passion, must disorder it. Yet we charge all the changes and alterations which such a yielding substance must undergo on the soul itself. We now discover that the soul and its powers remain still untouched, though it must feel these disorders. This consideration clears up the difficulty of most appearances, and takes away their ambiguity or lability to be mistaken; and particularly in the next objection.

Others have observed how wonderful it is that such a small part as the sensory should be capable of such an incredible number of different and distinct impressions. And certainly, if we consider an *adult person*, arrived to experience and knowledge, in whom this *small part* contains more different characters than the largest volume, it must be reckoned a prodigious instance of wisdom and power, to contrive such a piece of art, and to work it up in so small a room. But when we consider the materials in which this is performed, liable to be jumbled by every motion; and that the characters are preserved, notwithstanding such constant alteration; the wisdom and power of this transcends all admiration.

ons in it patent and open, as they are while we continue awake; and since in sleep these animal spirits are called from that function to other purposes; we may hence see the reason, why forgetfulness should accompany sleep, and the seat of memory be the first thing that is affected at that time. There is a plain necessity in the nature of the thing why it should be so. This is not the defect of the soul, but the imperfection of matter. And yet even here we may admire the *Goodness* and *Wisdom* of God. There is no mistake nor blunder in the case, as has been said. The œconomy stands in need to be rectified, the body wants respite from continued exercise and fatigue, and especially the animal spirits themselves are to be recruited. Sleep therefore was to be *a state of rest and inaction*, no change was to be effected, nor was the soul any way to be concerned here. It is the God of nature that watches for us, and performs all in the animal œconomy, (sect. 2. N° 12. to 18.) and recruits those very bodies of ours while we sleep. Thus there was no occasion for memory when the soul had nothing to do; hence these impressions are shut up, when their remaining open could be

be

be no longer of use. There would have been an inconvenience if they had been patent and legible during the time of sleep: the soul, awake by necessity, and active in its nature, must still have perceived them, and fatigued the body with constant action beyond its ability to hold out, *i. e.* sleep, and recruiting the body would have been thus still impossible. But by a contrary method the activity of the soul is qualified and kept under, for the sake of the body, that their opposite natures might be brought to *correspond*, and bear some proportion to each other. We may perhaps fancy, that the soul might have been employed in constant contemplation while we sleep; but then it must have indefinitely directed the animal spirits to those impressions, as while we are awake, and thus exhausted the only matter in the body subjected to its command, and designed to be the sole instrument and minister of the *will* in spontaneous motion. The body would thus have languished, sleep would still have been impossible, and spontaneous motion must have become an intolerable fatigue. In endeavouring to perform more than was consistent with the nature of body, the design

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and purpose even of a waking state would have been frustrated. The active nature of the soul therefore was by all means to be restrained at some times, that the body might be in a condition to obey it at other times. Or again, we may perhaps fancy that at least the soul might have acted by itself while we sleep, without using any part of the body, or molesting it in any manner. But if it had been thus indulged, if it had not been made dependent on the body to be limited by it all manner of ways, if it might have become a *separate person* at pleasure (so to say); it would have neglected the body altogether, and avoided being concerned in those things which are to be done in a state of union. How tedious and hateful must the body have been to it then! But now it loves it; cherishes it as something belonging to itself; drudges for it! To think and act this minute as separate spirits do, and the next minute to think and act as our embodied spirits *must* do, who are tied down to follow and obey the laws of matter, had been inconsistent: the transition must have appeared shocking and unnatural. The Union demands that soul and body should make but one person; but in this case
there

there would have been evidently two. How unwillingly would the soul have subjected itself again to the laws of the body, after having tasted a pleasure which would make them bitter ! We demand conditions, without knowing what we demand. The soul now seeks to prolong the union : this is consistent with farther views ; and we see the *First Cause* labours, both while we sleep and while we are awake, to make the union subsist !

Here I beg leave to add one remark more. In the state we have been speaking of, when all is at rest and silent, and the impressions on a *sensory* designedly sealed up from the view of the mind ; how easy is it to make *new* and *foreign* impressions there ? Suppose then *some cause* comes, and makes impressions in a *different character*, (or rather this is matter of fact, and not a bare supposition) the soul, as always *alert* and *vigilant*, must perceive what passes ; and that without memory of what hath passed before ; for, as hath been said, the impressions of former objects are shut up at that season. And this seems to be the formal ratio of dreaming, or the manner in which it comes to pass. Hence the soul must take all for *real* : it begins to act a

part in these new affairs: if the scene is shifted, it cannot help that; it must take things as it finds them; but still it is busy and active, and takes a part in all scenes. And thus it would continue for ages, acting, defending, contriving, &c. as things required; if sleep and these circumstances were still prolonged. If this be kept in mind, it will not be so difficult to advance something intelligible on the nature of dreaming, as hath hitherto been imagined. But to return: from all this we may see what reason there was in the nature of things, why the activity of the soul should be restrained in sleep; and why it should be barred from the perception of external things. And hence again we cannot but be convinced how necessarily it must be freed from all such *hindrances* and *inequalities* in a state of separation. And if all this be intelligible, (as it seems to me) and highly reasonable from the nature of a material sensory, and from the necessity of repairing the animal œconomy, and therefore of suspending the power of the soul over the body; he must talk very unreasonably who would turn the necessities of the body to an imputation on the soul. Let us act fairly between the two
 parts

parts of our composition. The bodies are *ours*, but the souls are *us*, if I may so express it : and he seems to revolt against himself, who raises the body above its rank. In a word, the soul cannot depend on the body as an *efficient* or *performing cause* of rational thinking : and that it should depend upon it as a *limiting* or *impeding cause* can be no objection.

XIV. The next argument or objection is the appearance of drunkenness. *Lucretius* says, *the eyes then roll, the tongue falters, the legs stagger; the soul itself is inebriated; noise, tumult, and quarrels begin(g)*: therefore a soul that is so disordered can be nothing but matter, or the result of a disposition of matter. This doth not altogether differ from the difficulty last considered; and therefore a good part of that reasoning will be

(2) *Denique cur, hominem cum vini vis penetravit
Acris; & in venas discessit diditus ardor:
Consequitur gravitas membrorum? præpediuntur
Crura vacillanti? tardescit lingua? madet mens?
Nant oculi? clamor, singultus, jurgia gliscunt?
Et jam cætera de genere hóc quæcunque sequuntur,
Cur ea sunt; nisi quòd vehemens violentia vini
Conturbare animam consuevit corpore in ipso?*

Ver. 475.

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applicable here, which I need not repeat. If some diseases affect the sensory, (as every material part may be affected with some disorder) drunkenness is a disease, and must, if any other, strongly affect it. For spirituous and fiery liquors, mixing in great quantity with the blood, and being diffused into all parts of the body, and especially the brain, (the *regia animæ*, as *Borelli* calls it above) must occasion a *notable change* in the mechanical motions of the œconomy; something very new and unusual to the *Sentient* there residing. Sleep, which is at last brought on by all this *hurry* and *disorder*, the head-achs, fevers, &c. which succeed, shew this to be so. And it is not only easily conceivable, that the percipient being should be affected with this commotion in the matter to which it is united; but (as I argued above in N° 10.) it is inconceivable that it should not. How is it at all affected, or made percipient of external things, but by motion excited in the sensory? And if other unnatural motions are excited in the same sensory; how can it be impercipient of them, by the law and condition of its union? Indeed I may say, to satisfy the Sceptic, that the soul is immaterial,

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the body should be liable to no disorder, contrary to the nature of mechanism; or the soul should feel no disorder, contrary to the condition of their union: for then it would not be sensible even of the right order and disposition of the body.

XV. I might speak to every particular in the present objection: but that would be too tedious. It hath been observed, that perception (of external objects) is regularly excited by certain modified motions through the organs (*a*): and if these modified motions are disturbed, or modified after an unwonted and strange manner (as it is impossible they should not in the present case) how can perception be regular? And this is applicable to more difficulties than the present. Some people stick by their bottle so long, till they do not know the persons they sat down with. Now if the like should happen in the fit of a fever, or other disease; where is the wonder! It would be a wonder indeed, if such a soft and yielding substance as the sensory, suffered as little alteration, as if it had the strength and firmness of brass. (See N^o 12.

(*a*) Note at (*n*) N^o 15. of the last.

above.)

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above.) Again, *Borelli* hath observed, *that the soul acquires the habit of moving the parts of the body, and of sending the animal spirits into this rather than the other part, by frequent trials and experiment*; and this is certainly true with respect to man: we see such habits acquired in many cases, after we are adult; though less true with respect to brutes, as shall elsewhere be remarked. How is it possible then, it should preserve this art at that time; or not be disturbed in the practice of it, by such a hurry, and commotion, of these animal spirits, or whatever other subtile matter it employs to this end, when all the fluids in the body are in such a hubbub and disorder? There is rather a necessity that the legs should stagger: all these *disorders*, instead of being objections, are direct consequences of a soft and yielding sensory, of fluids and animal spirits, easily put in motion, or disturbed in their motion. And here I leave it to be considered, if the soul were a certain subtile matter, as is pretended by some; whether such a rapid intestine motion and jumble would not dissipate it into a thousand atoms, and the least disorder of this
kind

kind become certain death (b). Farther, let it be observed, and indeed every body must have observed it, that a piece of mechanism so rude and clumsy as a clock is, doth not go after the same precise tenor, in the different extremes of heat and cold: and if a

(b) Or, if the soul results from a certain disposition of parts; how can it result from a contrary disposition of these parts? Or if it result from any intermediate degree of disposition; the difficulty will be, not that it feels the disorders of the body, since it results even from these; but why it is not constantly changed *fundamentally*, since the cause of it is constantly changed; for every new change is still *productive* of the soul. It should then be but a quality constantly produced; and therefore *never the same*; as the flame this minute is not the same with the flame that was last minute: and how can one quality be the subject of other qualities? In short, the soul cannot be the result of one individual disposition of matter: for then *every change* of that disposition would be *certain death*. Nor therefore can it result from a right disposition of matter; for that is *individual*. And if it cannot result from a right disposition, or a regularity of disposition, it would be absurd to say, it results from the disorder and irregularity of disposition. This very easy and short consideration will satisfy a man all at once that the soul is not material, without having recourse to other methods of reasoning. So, that, as was said N^o 1. of this section, the very objections against the immateriality of the soul afford a clear and convincing proof that it is immaterial.

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piece of mechanism finer and finer still, were liable to greater and more sensible alterations; this would never infer that it was moved without a *power*, or had no other mover, but the *mechanical configuration of parts*. Hence therefore, if it is certain from other reasons, that the soul is immaterial; these different affections it suffers from the body, can avail nothing to conclude, that it was but the result of mechanism. Lastly, let us consider that a man is in a different temper from himself, when without the circumstances of the present phenomenon, and perfectly sober: as when calm or in passion, in affliction or joy, &c. where the soul affects the body instead of being affected by it. Yet no man would make this difference an argument for material souls. Such a circumstance, where the *reverse* of the thing objected happens, shews that men mistake this appearance wilfully. For as Mr. *Wollaston* well argues, a *single word* spoke, or supposing it but spoke, or mistaking one word for another, or *looking* simply on a piece of paper where it is written, fills the soul with rage and fury; and thence at length disturbs the body. And how can that thing be material,

terial, which is so violently affected without material action? Certainly a word scrawled with ink on paper, hath no force or *moment*, to excite motion in matter, nor one word more force than another.

XVI. The next argument for the materiality, is taken from *fainting*, and other kind of fits, where all signs of life forsake the body, which yet afterward return (c). The modern Sceptic improves on this, from experiments on living creatures in the *air-pump*, and from some instances of persons, who have recovered, after they have been thought dead for some time. “ These experiments
“ and instances, say the patrons of material
“ souls, shew that *life* and *perception* are on-
“ ly the effects of mechanical motions in
“ the body, such as circulation and respira-

(c) *Quin etiam, sineis dum vitæ vertitur intrâ,
Sæpe aliquâ tamen è causâ labefacta videtur
Ire anima; & toto solvi de corpore membra.*

Ver. 591.

Also,

*Quin etiam, subitâ vi morbi sæpe coactus
Ante oculos aliquis nostros, ut fulminis ictu,
Concidit: & spumas agit; ingemit; & tremat artus;*

Ver. 486.

“ tion :

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“ tion: because when these motions are stopt,
“ life and perceptivity cease; and whenever
“ they are recovered, life and sense return
“ again. Or if the soul were really a di-
“ stinct living being, how can we imagine
“ that it would *linger*, and stay in a body
“ as good as dead; and not rather fly away
“ immediately?” This objection directly ar-
gues for the *possibility* of a contradiction;
That matter may arise to the perfection of
thought, reason, and self-motion, by being
moved mechanically. But I argue thus with
the objectors. *Matter may rise to thought,*
reason, and self-movency, without being moved
at all, or without any cause; and that all
matter may become living and thinking, with-
out any reason. This is my argument; and
if they can find any medium to prove it ab-
surd, they will have answered their own ob-
jection. For if they say it is perfectly ab-
surd, that any effect should be without *all*
cause; I own it, and apply it to *reason, spon-*
taneous motion, and life, which in their ob-
jection are effected absolutely without all
cause; since, as has been said above, the
cause assigned is as void of power to effect
these, as the absolute negation of all cause
is.

is. A particle of matter, by being impelled to motion because of its resistance, is no cause, nor any thing like a cause, why it should become living and reasonable. Double the number, and double the motion; and, as hath also been said, it is but the *negation of the cause doubled*: and so on. If they allow my argument good; I proceed, and say, *There is no difference between possibility and impossibility*. If they can shew me a difference, I apply it still to their own objection. If they grant there is no difference; then I conclude, They want a ground in the nature of things, to object against any thing I say, or advance: for all objections suppose a difference between possible and impossible (*d*). So certain

(*d*) I would here observe in general, That if an objection is not clogged with a contradiction, one may listen to it; but if the objection itself is contradictory, a man cannot propose it as an objection, but by thinking that contradictions may be true; in which case he is incapable of an answer; for to him then *truth* itself may be *impossibility*. If he is to be determined by reason therefore, he should think first with respect to his own objection, it cannot be true nor real, since it infers a contradiction. The end of all reasoning in the world is to keep free from contradiction; but it would be absurd to suppose one contradiction real and true in order

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tain is it that the sceptical principle takes away the difference between truth and falsehood, and introduces an universal defect of reason in philosophy! This might suffice: but I add, If they would reflect, that it is the law of the union of an immaterial soul to a body, that the soul cannot actuate the body, nor be apprized of external action by it, unless the mechanism of it be in a right order and disposition; otherwise there would be no need at all of an organized body, but *any parcel of matter* might be the body of an animal; if they would reflect on this, I say, or only take it but for a possible supposition, they would see that *such examples and experiments* must take place as much on that supposition, as when they suppose that there is nothing but matter in the animal. This renders these instances *equivocal*, and liable to be mistaken; and they have pitched on the impossible conclusion.

to keep free from another. Though my Adversary were inattentive enough, not to observe the repugnancy of what I say; though he should allow his own position to be overthrown; that cannot make it yield satisfaction to my own mind. This is so far from proving what he says false, that since our assertions *are contraries*, it proves his assertion true.

XVII. Let us once more resume the example of a watch, or clock, that we may see what is here asserted to be true, really effected in a parrallel case. The immaterial impulse of gravity or elasticity is the *power*: The constant action of this *power* is necessary to make the machine go. It is therefore properly the *mover*; or, if we might so say analogically, the *living principle* and *soul* of the engine. Yet the due configuration and disposition of the parts is also necessary: and, supposing that to be perfect in all the several pieces; it is still farther necessary, that there be no accidental impediments; not only nothing wanting that should be there; but nothing present that should not be there. And how many thousand ways may something of this kind happen? Or, how contemptible a thing may prove the impediment, even in such rude mechanism? a grain of sand, the smallest hair. It is farther no less necessary that the machine be kept dry, and the whole refreshed, (to speak still in the terms of an animal body) by winding up, once perhaps every four and twenty hours. These several things are all necessary, that

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there may be no impediment, though not necessary as *efficient causes*: and if the least requisite is wanting, or the least thing superfluous present, though the power still remains, and acts (or impels the dead parts) as at other times, the machine no more tells the hour, minute, day; or answers any of the ends it was designed for, than a picture of it drawn on paper would. In short, it is as dead, as if there were no power present, or acting. Let me here, by the by, reflect on the adorable power and goodness of God. How much more exquisite is the mechanism of our bodies! how infinitely more complicated! and how much more brittle are the materials! And yet we live! nay enjoy health, strength, &c. unless by our own faults. Now, from this liability in the machine to fall into fainting-fits, and to have all signs of life suspended in it, (continuing still to use the analogical terms) or from the recovering of it again; no body would say, that these mechanical motions, while continued, were constantly productive of, either the mechanical power of the engine, or yet, of a certain other power, which rises to the performing wonders quite above mechanism. I need not

go on with the comparison : the application is obvious, and shews that the objection proceeds from much inattention. Let me only observe, that the soul may still be present, though no signs of life appear about the body ; for, as was said in N^o 6. we can see but with bodily eyes ; and the activity of the soul is only discoverable by motion in the body ; and that motion is performed mechanically. *Ye did not see my soul all along* (says Cyrus on his death-bed to his sons) ; *but discovered it only from those things, which it performed in the body* (e). If therefore the mechanism be obstructed, mechanical motion is stopt, and the animal must appear dead. Though nothing is wider from a just conclusion, than that the soul is dead ; or *results only* from the mechanical motions in the body. If that were so, how could it be other than a new soul, kindled up again, after the mechanical

(e) Οὐδὲ γὰρ νῦν τοι πλὴν γ' ἐμὴν ψυχὴν ἐωρεᾶτε. ἀλλ' ὥς ἐκ τῶν πράττετο, ταῖς αὐτὴν ὡς ὄραν κατεφωρᾶτε. apud Xen. We have this more at large in Cicero, *Nec enim, dum eram vobiscum, animum meum videbatis : sed, eum esse in hoc corpore, ex iis rebus, quas gerbam, intelligebatis.* The conclusion is, *Eundem igitur esse creditote, etiamsi nullum videbitis.* Or rather this sentence is lost in the Greek since Cicero's time, as appears by what follows.

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motions were begun anew, which would never make the same conscious being as before. The soul must be continually *generated*, with every new respiration, and pulse of the heart; and continually *cease to exist*, as the motions ceased that caused it. We might as well say that every motion of the balance or pendulum of the watch should beget thought: and how these independent thoughts could be applied to one subject, or constitute a thinking being, is inconceivable (*f*).

XVIII.

(*f*) What is here said sets the reasons for the immateriality of the soul in a new and different light. It is very absurd that the soul should be successively generated by every pulse of the heart, or blown up with every respiration of the lungs. A power may be inherent in, or belong to one certain subject; but that a power should be hourly produced by mechanical motion, constantly begot, constantly die; have no subject to reside in; and be itself the subject of other powers and capacities, as the *soul of man* is, are absurdities not to be paralleled. *This power* must then consist of *parts*, parts infinitely small, according to their momentary production: it would be a fleeting successive thing; the parts of it independent, which could never make a *continued consciousness*. Such a soul could have no nature, no conception belonging to it: it is as if we should say, *Duration is a power, motion is a soul*; or we might say any other thing we please, provided it be but absurd enough: The
Sceptic

XVIII. As to the soul's *not flying away immediately*: How can it without licence? Who is judge of the time? This proceeds on the supposition of want of government and providence in this momentous juncture (g). As was argued before, if the power of a governing cause is constantly exerted upon inanimate matter; and if all the changes in the manner of its existence require his concurrence; how much more must the rational and living part of his works, for which all the rest were designed, challenge his care and providence? If we were to assign a proportion here, as certainly there cannot be a defect of proportion, how great would the difference be! Besides, is it not *by his power*, that the disorders of the circulation, respira-

Sceptic can have no idea or conception belonging to such assertions. And all this is as applicable to his supposition that the soul is *produced* by the mechanical motions of the body, as to the supposition that *thought* may be produced by the balance of a watch while it beats. An impossibility in the one case, must be no less an impossibility in the other.

(g) *Nisi enim Deus is, cujus hoc templum est omne, quod conspicias, istis te corporis custodiis liberaverit, huc tibi aditus patere nequit.* Cic. somn. Scip.

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tion, &c. are again rectified; and by his power that they continue still to be performed, after they are rectified? And why should the soul have liberty to leave the body, He continuing to exert his almighty power in keeping up the œconomy? Or before the final ineptitude is suffered to take place? (See N° 21. of the last Section.) Since the *union* requires his particular act and intervention; the *separation* must also require his particular act and intervention; otherwise the union would be vain, and the design frustrated.

XIX. *Lucretius* makes it an argument of the soul's being material, *that it doth not leave all the parts of the body at once, rejoicing, as a serpent to lay down her exuviæ* (b). Here it is to be observed, that he makes that

(b) *Nec sibi enim quisquam moriens sentire videtur
Ire foras animam incolumen de corpore toto;
Nec priùs ad jugulum, et superas succedere fauceis:
Verùm deficere in certâ regione locatam:
Ut sensus alios, in parte quemque suâ, scit
Dissolvi: quod si immortalis nostra foret mens;
Non jam se moriens dissolvi conquereretur:
Sed magis ire foras, vestémque relinquere, ut anguis,
Gauderet, prælonga senex aut cornua cervus.*

Ver. 606.

which

which he calls the soul, to be diffeminated through the whole body (*i*): but he forgets to consider that the appearance, which he brings as an objection, agrees better with the contrary hypothesis, than his. For if the *Sentient* in the body is a different substance from matter, it must feel the limbs become gradually incapable of being actuated, as the disorder of the mechanism encreases; whereas on his supposition of a *dividuous* soul, which dies in one limb after another (*k*), the limb would be quite void of pain, as if it were cut off. His scattered soul doth not agree with the anatomy of an animal body, where all the nerves terminate in one place, and convey all the external motions impressed thither (*l*). There is something full of a childish

(*i*) *Sic anima atque animus per se nil posse videntur :
Nimirum quia per venas, & viscera mistim,
Per nervos, atque ossa tenentur corpore ab omni.*
Ver. 564.

And again,
*Namque ita connexa 'st per venas, viscera, nervos
Ossaque; uti dentes quoque sensu participantur.*
Ver. 691.

(*k*) — *Inde pedes, & crura mori: pòst indè per artus,
Ire alios tractim gelidi vestigia lethi.*
Ver. 627.

(*l*) It is extremely remarkable, I think, that *Lucretius*

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childish simplicity in supposing, *that a man should feel his soul go out whole and entire, through his throat.* This is supposing it still material ; that the parts of the throat and it should *act* and *re-act* against one another ; while he is making it an argument, that this would be the appearance, if it were immaterial. Why should the *throat* be the out-let to the soul ? Doth immaterial substance want an open passage and room ? *Efflare animam* is but a metaphorical expression. He supposes perhaps, that his adversaries place the soul in the lungs, as he places the mind in the middle of the breast (*m*). He fancies also that the man hath still sense and perception left in the parts of his body, when that which he allows to be the percipient hath abandoned them, and is taking its flight. But these are the absurd prejudices

tius says, if the soul were immaterial, or did not grow up with the body ; that would have been the case, which is really the case.

Sed velut in cavcâ, per se sibi vivere solam

Convenit ; ut sensu corpus tamen affluat omne.

Ver. 684.

(*m*) — *Consilium, quod nos animum mentemque vocamus :*

Idque situm mediâ regione in pectoris hæret.

Ver. 140.

of

of an infant ; not the reasoning of a Philosopher.

XX. These are the arguments for the materiality of the soul, in all which it is observable, that the reasons are not drawn from the nature of either substance separately, as they ought to have been ; nor is it considered what kind of appearance they must make, if they are united (see N^o 20. of the last) ; but the *dubious* and *equivocal phænomena* of the whole compound are pitched upon, where the reasoning of course must become *perplexed* ; and the disorders of the material organs are imputed to the living and percipient Being which uses them. This is directly contrary to the method that should have been taken. Men begin with the simplest things, and thence proceed to more complicated cases. Mathematicians at first demonstrate truths so easy that they seem trifling : but what a wonderful superstructure of science do they raise on that plain foundation ! Just so, the *inactivity* of matter is a plain and obvious quality, the first notion that all men, without exception, entertain of it ; though they are unacquainted with the philosophical

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sophical term, *vis inertię*; and the *inconsistence of inactivity and active power* is a self-evident truth. Proceeding then fairly and ingenuously with these principles, what a scene of things do we not discover, performed by immaterial power, both in the animal body and without it! Farther, if inactivity belongs to matter; *power and perceptivity must certainly belong to another substance*. This is no less self-evident. And then to collect what farther is necessary to be known about active perceptive Being (as above) whether in a state of union or separation, cannot be extremely difficult. This, I conceive, is the proper method. It is true *Lucretius* brings store of other arguments for the immateriality of the soul; but they are such as need not be mentioned. He generally touches on something that falls in with a common prejudice, or is apt to raise a scruple at first view; but having done that, he is forced to leave it; for that is all that can be done. The subject will not abide an argument, or bear being examined on all sides (*n.*)

XXI. We

(*n*) Of this kind is the objection, that material and immaterial (or, as he willfully mis-names them, mortal and

XXI. We may take notice, before we leave this subject, that as there are many symptoms in the compound of soul and body, occasioned by the material half, which shew defects incompetent to a spiritual Being; and

and eternal) substance, could not be united at all. *ver.*
801.

Quippe etenim mortale æterno jungere; & unâ

Consentire putare; & fungi mutua possè;

Desipere 'st: ———

But on the contrary, it is really impossible that activity and inactivity, life and deadness, can consist in the same subject [matter]. Thence follows a very undeniable necessity of two different subjects of inhesion, *viz.* material, and immaterial substance: and then it is *madness* indeed, (*in him*) to deny the possibility of their union, which is thus easily shewn to be fact. Yet how strong a difficulty is this made by modern Sceptics! Again, he says, “ Since the body cannot subsist without the
“ soul, but putrifies (*ver.* 579. & *seq.*) we need not
“ doubt but that this happens, because the soul, being
“ scattered through all the body, hath evaporated, like
“ smoke through the pores.” Here a poor scruple is endeavoured to be raised from putrification; as if the body were not liable to putrify and be corrupted, in many cases, while the animal lives; or were always liable to that, when it is dead. Again he says, “ How could
“ such a thin thing as the soul subsist, without the te-
“ gument of the body?” (*ver.* 602.) To keep it warm perhaps!
from

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from which the objections above are drawn : so there are not wanting others which spring from the active nature of the soul, and as clearly shew *that part* of our composition. I do not mean life and spontaneous action, nor thought and reason, which are constant and obvious appearances, utterly incompetent to material substance ; but other phænomena less observed ; one or two of which I beg leave here barely to name. One altogether inconsistent with the materiality of *that thing* which thinks in us, is, that we are sometimes so wholly occupied in the contemplation of some absent object, or some purely ideal thing, that we are quite impercipient of objects round us, and which at present act upon our senses (o). Certainly a *present*

(o) “ Sometimes (says Mr. *Locke* b. 2. ch. 19. sect. 3.) the mind fixes itself with so much earnestness on the contemplation of some objects, that it turns their ideas on all sides ; remarks their relations and circumstances ; and views every part so nicely, and with such intention, that it shuts out all other thoughts, and takes no notice of the ordinary impressions made then on the senses, which at another season would produce very sensible perceptions.” It were to be wished that the Author had applied this to the possibility of matter’s thinking.

object

object should more powerfully solicit a material percipient, by its constant and real action, than things distant in time and place, which do not act at all, or than *abstract ideal objects*, which cannot act. I need not give examples of such as are in grief, anger, fear, love; every one will remember such instances, either in himself or others, as are altogether unaccountable, if the percipient within us were material. A man may sit in a full company at table, and neither hear nor see what is done round him. And a disorder of the body cannot so much as be pretended here. It happens entirely from the simplicity of the attention, or perceptive faculty, which cannot apply intensely to more things at once (*p*); and from its voluntarily employing itself in the earnest consideration of something absent, whereby it becomes impercipi-

(*p*) *Lucretius* is very explicit in asserting this simplicity of the perceptive faculty, when it serves his turn; though it be altogether inconsistent with his principles.

Et tamen, in rebus quoque apertis, noscere possis,

Si non advertas animum, perinde esse quasi omni

Tempore semotæ fuerint, longæque remotæ.

Cur igitur mirum est, animus si cætera perdit,

Præterquàm quibus est in rebus deditus ipse?

Lib. 4. ver. 899.

ent

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ent of the action of material objects upon it. And neither this simplicity of the attention itself in any manner accords with a material percipient (N° 8. Sect. 3.) nor the voluntary turning it away from the present solicitation N° 4. of this.)

XXII. Moreover our bodies must be always in contact with something or other, which supports their weight; and this, whether we *walk, sit or lye*; that is to say, since action and re-action are equal, our bodies are always pressed with a force equal to their own weight. This pressure is constant, and still the same, when the body is best disposed. But if the percipient within us were material, this great and constant pressure ought to solicit it constantly, and as much as any pressure or force that were not greater; which indeed is not so: for often it is not percipient of this force at all, and often it is more percipient of a smaller force. Nor can it be said that the continual pressure gradually lessens the sense of the force impressed; for the force constantly acts, and the impression is constantly made, and the mind at any time becomes percipient of it, by directing the
attention

attention thither. The true cause therefore is that just now assigned. All the parts of our body are constantly touched, or acted upon, by something or other; and yet we are rarely percipient of this, but by a particular act of the will, directing the perceptivity to this, or to the other part. Indeed, taking in the consideration that the perceptivity is simple, or but one; if the percipient were material (a solid, resisting percipient) the strongest material sollicitation ought always to sollicit it most; and therefore to engross it. That is, our perception would be precisely mechanical; and constantly determined by the greatest material sollicitation. What kind of thinking could be made up out of this! How much better then is it ordered than the Sceptic would have it! It appeared before (N^o 29. Sect. 2.) that the perceptions of a solid resisting percipient ought to be mechanical and necessary; but the present consideration, I think, shews us the formal manner of that necessity (*q.*)

XXIII. As

(*q*) It is worth observing here, that since a solid extended percipient would necessarily have its perceptivity excited by material action upon it, and resistance or re-
action.

XXIII. As all material action ought to solicit a material percipient; so I might here farther insist upon what was only hinted at, from Mr. *Wollaston*, at the end of N^o 15. *that nothing but material action could solicit it*; which is an equally necessary consequence of the materiality. And in pursuing this, it might be shewn, that the strongest passions and emotions in the soul are excited by no material action, or not by the strongest material action, contrary to plain and obvious reason, on that supposition. No one object, equally near, and equally illuminated; nor found, equally strong, hath more material action effected in it by its solidity; since this perception would be precisely proportional to the force of the material impression, *i. e.* mechanical; and since therefore (the simplicity of our perceptivity being considered) the greatest material solicitation would be only perceived, or at any rate most perceived; since, I say, these are necessary consequences of matter's thinking, and yet all false and contradictory to experience, it is worth observing that *Hobbes's* solution of perception, which is exactly this here given, appears thus all at one view absurd and ridiculous. For he makes perception to consist in resistance, re-action (*de sensione & motu animali*); contra-pressure, ἀντίωσις (*Leviath. cap. 1.*) which plainly infers all that is here asserted.

impulse

impulse than another. It might also be shewn, (from this principle, the want of material solicitation, I mean) that the power of forming abstract ideas, or abstracting perception from all matter; the power of imagination, or forming compound ideas no way impressed by matter; I say, it might be shewn by particular deductions from this principle, that these and other activities of the soul, could no way belong to a material Percipient. But passing by these, (since the theory in Sect. 2. makes these minute ways of arguing unnecessary;) I shall only name another particular, that should practically satisfy us of the immateriality of our thinking part. And that is the consideration of the *indefeasibleness* or *unweariedness* of the principle of thought in us. We feel our bodies every now and then sinking down under their own infirmities: but the thing that thinks in us would never give over, if the body could keep up with it. It is busy all the day with the body, and all the night without the body, and all the day with the body again: and thus in a constant circle, without respite or intermission that we can perceive (N^o 23. of the last) by our strictest enquiry. For the body no sooner sinks down

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in weariness and slumber, than this thing within enters fresh upon other scenes of action; and hears and sees things worth enquiring into; and this without the subserviency of its organs, which are then disabled from their function. That which lives and perceives in us, lives and perceives at all times; if its vital and perceptive faculty could be duly applied to by fit objects; as from this particular it appears: and from which also it appears, that it can be otherwise applied to, than by external objects through the senses. Now, without pushing this argument as far as it was urged in the last section, or taking notice of the particular reasoning there, here is such a contrariety of natures obviously discoverable, that it is a wonder men could ever find in their hearts to ascribe them to the same thing. This principle itself cannot certainly be body, nor the result of the fit disposition of body, being so incessantly active, when the body lies in a state of temporary death, because of indisposition (*r*).

XXIV. Lastly,

(*r*) This contrariety of natures, *viz.* the indefeasible activity of the soul, and the successive failing of the body, proceeds from the simple nature of the soul, which hath no parts, (sect. 3.) so that it can lose nothing of itself

XXIV. Lastly, those very defects, which have hitherto been supposed marks of the materiality of our souls, by the help of a little attention, plainly shew the contrary. What is the cause that while awake, I am sensible of external action; and not sensible of it while asleep? A material Percipient within me ought at that time also to perceive the action of external objects; or not to perceive it, because of some disorder in matter. And thus the perceptivity and activity of matter should wear out once in the four and twenty hours; till the disorder were rectified, and that disposition restored, which made it living and sensible. Again, I cannot subsist without food, tho' but for a few days; nor toil constantly, but for one whole day perhaps, without running the whole œconomy into disorder. These and a thousand other instances shew that, if activity and perceptivity belong to matter, they belong to some certain order and disposition of it. There is no appeal from this conclusion (s).

And
itself by action; and from the body as made up of parts that are always in flux, and of which a constant waste is made in all mechanical and voluntary motion.

(s) To make these independent of any order, or any disposition

And yet there is no possibility of making this conclusion, but by allowing the truth of all manner of contradictions (N^o 2, 3, and 15.) This brings the dispute to a short issue. So that in effect, our very *eating, drinking, sleeping*; our taking medicines, curing our diseases, our *weakness* as well as strength, our *sickness* and health; every circumstance and accident of our bodies, ought easily and practically to satisfy us at all times, of the immateriality of our souls; if we accustom ourselves to think with exactness and propriety on this subject. Therefore, tho' it hath been here all along allowed, and supposed, that these effects are *equivocal* and *fallacious appearances*; yet we are now at last to correct that supposition: for in truth there appears no symptom, or defect, or accident in the body that is equivocal, or could follow equally from either hypothesis: but those very appearances hitherto called ambiguous, conclude against the materiality of the soul, which they were brought to support.

disposition of matter, would be to make all matter necessarily active and percipient. See also again the reasoning at note (b) N^o 15. above.

F I N I S.

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